445:106 ORIG, (REG.

PRELIMINARY ASSESSMENT
OF THE
BLOEDE MANUFACTURING PROPERTY
(MD-466)

August 1993

Prepared by: Maryland Department of the Environment
Waste Management Administration
Environmental Response and Restoration Program
2500 Broening Highway
Baltimore, MD 21224

Prepared for: U.S. Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia, PA 19107

Table of Contents

1.0 INTRODUCTION

The Maryland Department of the Environment (MDE), Waste Management Administration's Environmental Response and Restoration Program (ERRP) performed this study under U.S. Environmental Protection Agency (USEPA) Cooperative Agreement V-993004-01-0.

The MDE/ERRP Site Assessment Division was contracted to conduct a Preliminary Assessment (PA) of the Bloede Manufacturing Property (MD-466). The purpose of this PA is to assess the potential for release of hazardous waste via groundwater, surface water, soil exposure and air. The populations and sensitive environments which potentially may be affected are then discussed. The scope of the PA included review of available file information, a target survey and site reconnaissance to determine if additional action under CERCLA is required.

2.0 SITE DESCRIPTION AND OPERATIONAL HISTORY

2.1 LOCATION

The Bloede Manufacturing Property is located at the 700 block of Caton Avenue in Baltimore City, Maryland (See figures 1,2, and 3). The geographic coordinates are 39° 16' 32.9" west latitude and 76° 40' 26.4" north longitude. The Maryland grid coordinates are 525,700 feet north by 892,300 feet east.[1]

From the MDE office in Baltimore, directions to the Bloede Manufacturing site would be as follows: Take Route 95 south towards Washington D.C. for approximately 7 miles until you reach exit 50, Caton Avenue. Take Caton Avenue and travel northward for about 1 mile, cross over Wilkins Avenue and travel an estimated one-half mile to the 700 block of Caton Avenue. The Bloede Manufacturing site is located on the left hand side just beyond the Primrose Place Convalescent Center. Total one way distance to the site is approximately 8.5 miles.[2]

2.2 SITE DESCRIPTION

The Bloede Manufacturing site is a 6.5 acre inactive facility located in the southwest section of Baltimore City. The area inhabits manufacuring, commercial and residential buildings with St. Agnes Hospital being a major health care facility, to the south of the site property. Bloede Manufacturing was a former glue and adhesives production plant which operated from approximately 1934 until 1956 when the property was sold to National Starch Product, Incorporated. Most of the buildings that once existed on site have since been abandoned, demolished, or destroyed by fire. The site property has been grown over by woods and other vegetation, however the road leading into the site is still accessible by vehicle and

as a result, the site has been victimized by several accounts of nuisance and commercial waste dumpings. Numerous waste piles containing wooden pallets, rubble, scrap metal, brick/block, stumps, and household debris were observed on site. Some asbestos product is said to be present in the standing structure which remains on site.

The site slopes down gently from north to south and varies in elevation from about 146 feet in the north portion to about 136 feet in the south section, and slopes steeply towards Maidens Choice Run.[3]

2.3 OPERATIONAL HISTORY

The Bloede Manufacturing site is currently owned by P.F. Obrecht and Associates, Incorporated of Timonium, Maryland. P.F. Obrecht (also known as Limited Partnership) purchased the property in September 1989 and has been unsuccessful in finding a buyer for the property, primarily because of environmental reasons. In the mid to late months of 1989, one 61,500 square foot single story storage building and one 20,000 square foot warehouse was proposed for the site, however the building plans eventually fell through.

Subsequent to the Bloede Company selling the property to National Starch Product, Incorporated in November 1956, the site has had multiple property owners. In May 1971, Albert G. Aaron purchased the property from National Starch and in January 1987, Madeline G. and Louis E. Burriss purchased the facility from Albert A. Aaron.[4]

2.4 HAZARDOUS WASTE MANAGEMENT PRACTICES

The Bloede Manufacturing facility operated for approximately 22 years producing different types of glues and adhesives. The Maryland Department of the Environment has no permitting records on the site and the primary source of information has been a former employee who had worked for Bloede during the early 1950's. This is also how MDE first became knowledgeable of the site. Mr. Charles Harrison was an employee for Bloede Manufacturing for approximately 4 - 5 years. During a telephone conversation with Mr. Harrison, he had indicated that during the manufacturing process of glue, some of the product went "bad" or did not function as it was intended to. As a result, the bad batches of glue which was stored in 55 gallon drums was indiscriminately dumped on the site property, more specifically over the hill (south side of site property) towards Maidens Choice Run (Figure 4). Mr. Harrison could not estimate the quantity of bad glue that was dumped on site other than it happening often. He indicated that some of the constituents that made up the glue were formaldehyde, sulfuric acid and caustic soda.[5] In addition, Mr. Harrison who resides in the

vicinity, believes that a link may exist between those who have worked at or live near the site with an increase in the cancer rate for that area. There have been no known removals or other remedial efforts completed at the site.

2.5 PREVIOUS INSPECTIONS

There are no records of any previous inspections conducted by the Waste Management Administrations Enforcement or Groundwater Investigation divisions. Before the proposed construction of the two storage structures in 1989, P.F. Obrecht and Associates contracted with the Environmental Management Group, Inc. to complete an inspection of some asbestos material that was observed being in one of the buildings on site. Approximately twenty five (25) linear feet of asbestos containing building material (ACBM) in the form of steam pipe insulation was located in the Quonset Hut building. Additionally, two (2) one (1) foot strips of ACBM were found in one of the four (4) remaining structures. In October 1989, Power Components Systems, Inc. was hired and removed the asbestos material.[6] (Appendix 1)

In July 1989, National Foundation Engineering, Inc. was contracted by Obrecht to conduct a subsurface investigation at the site. The investigation included five soil samples to determine presence of hazardous waste. While these tests indicated that there was no hazardous waste present in the samples, National Foundation had observed some strong foul odors in some of the samples. In August 1989, six (6) additional borings were drilled in an attempt to locate the foul odor and test for heavy metals. No foul odors were observed, and very low levels of lead and cadmium were detected in some of the soil samples. In summary, National Foundation indicated that the site did not contain hazardous materials.[3]

3.0 SAMPLING

Other than the sampling information referred above, no additional sampling data is known to exist. Soil boring locations as well as the records of soil exploration have been included in Appendix two (2) of this report.

4.0 GROUNDWATER PATHWAY

4.0.1 PRECIPITATION

The total annual precipitation in the site area is approximately 44 inches per year (ipy). Mean annual lake evaporation is about 36 ipy. The net annual precipitation in the site area is estimated to be 8 ipy. The two year 24-hour rainfall

is approximately 3.5 inches.[7]

4.1 HYDROGEOLOGIC TARGETS

4.1.1 SOILS

All of the soils in the southeastern area surrounding Baltimore City formed in parent material derived from unconsolidated sediment of the Atlantic Coastal Plain.[8] It is assumed that the Alluvial series and Baltimore silt loam have been the indigenous soils before the city development. Some of the areas within Baltimore City have been covered with fill during the construction activity and the existing soils have been extensively modified. A soil survey map is not available at this time for the City of Baltimore.

4.1.2 PHYSIOGRAPHIC PROVINCE

The Bloede Manufacturing Property site is located in the easternmost physiographic province, the Coastal Plain of Maryland. This province is characterized by layers of unconsolidated sediments that range in thickness from 8,000 feet at the Atlantic coast to a non-presence at the border of the adjoining Piedmont province. At the surface lies a veneer of Pliocene, Pleistocene and Holocene epoch sediments. Underlying these surficial sediments are older Tertiary through Cretaceous unconsolidated sedimentary strata that dip slightly and thicken towards the southeast. The oldest of these sediments, the Patuxent Formation, overlies the crystalline bedrock of the Piedmont complex. The site is situated on a major seaward-dipping wedge of unconsolidated sediments that range from Cretaceous to Pleistocene and Holocene.[9]

The Coastal Plain Province in this area is marked by a broad undulating surface with elevations less than 150 feet above sea level and little estuaries incised into it.[1] The low undulating hills decrease in elevation toward the Chesapeake Bay, which is less than 3 miles away.

4.1.3 STRATA AND ROCK TYPES

There are five lithologic formations that are relevant to the site. These are, from oldest to youngest, the Piedmont complex, the Patuxent, the Arundel Clay, the Patapsco, and the recent deposits. The Patuxent, Arundel Clay and Patapsco are often described together as the Potomac Group. This grouping of these three formations is significant because they were deposited in a river-delta environment. This means that individual lithologic units are not readily traceable, even over short distances because the sediments have little lateral continuity. All these formations

are described here in general terms.[10,11,12]

The Piedmont Basement Complex consists of metamorphosed sedimentary and igneous rocks. Any porosity found in this formation is secondary in nature, that is, it is due to fracturing. It can be considered an aquifuge in this area.[10,11]

The Patuxent consists of a quartz-rich sand and gravel, interbedded with discontinuous lenses of clayey silt. Iron oxide cementation is common in the outcrop area.[10] In Baltimore County the formation outcrops in a zone one to four miles wide.[11]

The Arundel Clay consist of variegated layers of clay with sand lenses. The clays are predominately illite and kaolinite.[10]

The Patapsco Formation consists of quartz sand, interbedded with lenses of kaolinite and illite clay.[10]

The recent deposits include both Pleistocene, Pliocene, and Holocene epoch deposits. These consist of quartz sand, gravel, silt, and kaolinite and illite clay.[10]

Besides the five lithologic formations, there is a sixth one that is also significant in the area, but hard to describe other than as man made fill. The fill was observed on site covering at least a 2 acre area.

A geologic map of the surrounding areas of the site is shown on Figure 6.

4.1.4 AQUIFER DESCRIPTION

The Patuxent formation serves as the only significant aquifer in the area. This aquifer has been pumped extensively since the 1850's. In 1945 the potentiometric surface was mapped and several cones of depression identified. Since that year aquifer use has steadily decreased and by 1982 the potentiometric head had risen approximately 40 feet.[10]

The drop in potentiometric head away from the outcrop area indicates that recharge is from that area, and initially from atmospheric precipitation. The presence of surface water in the outcrop area indicates that this is also a likely source of recharge for this aquifer. One estimate, based on a regional digital simulation, gives recharge to the Patuxent at 2 inches per year. The cumulative sand thickness of this aquifer, deduced from geophysical investigations, probably does not exceed 200 feet in thickness. Storativity for the whole aquifer ranges from 0.00019 to 0.000038.[10,11]

The Arundel clay serves as a confining layer for the Patuxent

formation. Well logs from the nearby area indicate this layer extends from 60 to over a 150 feet. There are some spots under the Harbor area of Baltimore where the Arundel clay has been breached. This provides a conduit through which water may discharge into or out of the Patuxent aquifer. Although the permeability of clay is low, the porosity is high. Subsequently, the Arundel clay contains large amounts of water in storage.[10,11]

The Patapsco aquifer coincides with the sand facies of the Patapsco formation. In Baltimore County, this includes almost the entire formation. Around the turn of the century this aquifer was extensively used, however because the Patapsco subcrops extensively underneath the Patapsco River, chloride contamination became a major problem in the early part of the century. Currently there is no major use of this aquifer for residential purposes. Where the potentiometric head is greater in the Patuxent than in the Patapsco, there is leakage from the Patuxent aquifer through the Arundel clay to the Patapsco formation. The converse is true where the head is greater in the Patapsco, otherwise recharge is from the surface. This aquifer probably does not exceed more than a few feet in thickness in the site area, where it is even present. Where it is present it is indistinguishable from recent surface sediments.[10,11]

The recent sediments, for the most part, do not obstruct the flow of groundwater to underlying formations.[10,11]

A quick review of the available boring logs within a 4-mile radius of the site leads to the following remarks:

- the average depth of wells is approximately 120 feet and does not exceed a depth of 600 feet (BA 81-4532);
- the depth of shallow aquifer ranges from 9 to 86 feet;
- there are no karst aquifers in the site area.

(Appendix 3)

4.1.5 SITE SPECIFIC GEOLOGY AND HYDROGEOLOGY

The records of MDE indicate that 128 domestic wells have been drilled within a four mile radius of the site since 1969.

The domestic and industrial wells within the surrounding area of the site produce from the Patuxent aquifer. The Patuxent transmissivity values range from 130 ft^2/day to 10,700 ft^2/day and the storage coefficients from 10^{-4} to 10^{-5}. [13]

4.2 GROUNDWATER TARGETS

The dominant groundwater use within the four mile radius of the site is for testing or monitoring purposes. These wells are

owned primarily by petroleum companies and other large commercial establishments. There are no municipal wellfields within the target distance radius of the site and greater than 99 percent of the four mile population depends on the Baltimore Department of Public Works (DPW) municipal system for their drinking water.

The Baltimore DPW draws water from intakes located on the Liberty and Loch Raven Reservoirs, and it has a backup intake on the Susquehanna River.[14]

The Liberty Reservoir is located northwest of the site, and it lies along the border between Carroll County and Baltimore County. This reservoir has a capacity of 43.33 billion gallons of raw water, and an average of 90 to 120 million gallons per day (MGPD) is withdrawn from this reservoir and treated at the Ashburton Filtration Plant.[14]

The Loch Raven Reservoir is located northeast of the site. This reservoir has a capacity of 23.7 billions gallons, and an average of 140 to 150 MGPD are withdrawn from this reservoir and treated at the Montebello Filtration Plants.[14]

The distribution of populations who depend upon private wells within the four mile radius is as follows:

Distance Ring From The Site (miles)	Population Served By:		Ring Total
	Private Wells	Municipal Wells	
0 - 1/4	0	-	0
1/4 - 1/2	0	-	0
1/2 - 1	0	-	0
1 - 2	10	-	10
2 - 3	24	-	24
3 - 4	94	-	94
Totals:	128	-	128

This estimate is based upon well log printouts from MDE's Waste Management Program and house counts from USGS topographic maps.[1,15,16,17,18] An average of 2.4 persons per dwelling for Baltimore City was used to calculate this figure.[19]

The nearest drinking water well is located on Ridge Road approximately 1.75 miles west of the site. According to the Waste Management Administration's well log printout, this is a domestic well and there is no known analytical data which supports sampling of this well. Based on an average of 2.4 persons per dwelling for Baltimore City, the population associated with this well is about

three (3) persons.

The MDE/Water Management Administration is in the process of developing the wellhead protection area (WHPA) program for municipal groundwater systems in Maryland. The MDE/Water Management Administration has provided the MDE/Waste Management Administration with an interim estimate of two miles as the wellhead protection area for municipal wells located in non-karst terrain.[14] Since there are no municipal wells within the four mile area, the site would not qualify as being in any wellfield WHPA.

4.3 GROUNDWATER PATHWAY CONCLUSIONS

Based on circumstantial evidence surrounding the operational history of the site, and the practice of indiscriminate dumping of glue and glue products, a release to groundwater has been suspected.

5.0 SURFACE WATER PATHWAY

5.1 HYDROLOGIC SETTING

The Bloede Manufacturing Property has been determined to be located within the 100 year floodplain.[20] The two year 24-hour rainfall is approximately 3.5 inches.[7]

Overland surface water runoff from the Bloede Manufacturing Property will flow approximately 50 feet in a southeast direction, over a steep grade before entering Maidens Choice Run (Figure 5). Maidens Choice Run, classified as a small stream, is the probable point of entry (ppe) for overland surface water runoff from the site to enter the 15-mile surface water migration pathway. At this point, Maidens Choice Run travels southeast for approximately 3200 feet at a flow rate greater than 10 and less than 100 cubic feet per second (cfs) until it reaches Gwynn Falls. The Gwynn Falls, a moderate stream, flows in a southeasterly direction for an estimated 2.5 miles at a rate of 100 - 1000 cfs where it converges with the Middle Branch. The Middle Branch is a large stream with a flow rate estimated to be 1000 - 10,000 cfs. The Middle Branch travels southeast for approximately 3.25 miles until it reaches the Patapsco River. The Patapsco River is a large river with a flow rate greater than 10,000 cfs. The Patapsco then travels in a southeast direction for approximately 8.75 miles thus completing the 15 mile surface water pathway at a location about 2 miles northeast of Hog Neck, Maryland.[1,15,16,17,18] The surface water migration pathway is described in the following table:

From	To	Distance From the ppe Feet/Miles	Approximate flow rate of the contiguous stream (cfs)
Overland Flow	ppe-Maidens Choice Run	50 Feet	>10 - 100
Maidens Choice Run	Convergence with Gwynn Falls	3250 Feet	>100 - 1000
Gwynn Falls	Convergence with Middle Branch	3.1 Miles	>1000 - 10,000
Middle Branch	Convergence with Patapsco River	6.35 Miles	> 10,000
Patapsco River	Patapsco River north of Hog Neck, Maryland	15.1 Miles	> 10,000

5.2 SURFACE WATER TARGETS

There are no surface water intakes along the sites 15 mile surface water migration pathway.

All bodies of water associated with the surface water pathway are used for fishing and various other recreational activities. Maidens Choice Run, Gwynn Falls, Middle Branch and the Patapsco River are considered fisheries for sustenance and recreational purposes.

A total of 5,900 frontage feet (1.2 miles) of wetlands are located along the 15 mile surface water pathway. Wetland frontage is absent from the ppe to Gwynn Falls. From Gwynn Falls to its convergence with the Middle Branch, there are an estimated 1,800 frontage feet of estuarine intertidal wetlands. There are an estimated 4,100 frontage feet of estuarine intertidal wetlands located from the Middle Branch segment of the surface water migration pathway to where the pathway ends on the Patapsco River.[21,22,23]

The distribution of the wetland frontage along the surface water migration pathway is summarized in the following table:

From	To	Wetland Frontage (miles)	Approximate flow rate of the contiguous stream (cfs)
Maidens Choice Run at the ppe	Confluence with Gwynn Falls	0	>100 - 1,000
Gwynn Falls	Confluence with Middle Branch	0.34	>1000 - 10,000
Middle Branch	Patapsco River north of Hog Neck, Maryland	0.78	> 10,000

5.3 SURFACE WATER PATHWAY CONCLUSIONS

Maidens Choice Run located approximately 50 feet south of the site property has been identified as a primary fishery. Based on circumstantial evidence of prior waste practices on site and the fact that the stream is in close proximity to the waste piles that are currently on site, a release to surface water has been suspected.

6.0 SOIL EXPOSURE AND AIR PATHWAYS

6.1 PHYSICAL CONDITIONS

The Bloede Manufacturing Property is most accessible from its eastern boundary via Caton Avenue. Penn Central Railroad is to the north and to the west of the site property and Maidens Choice Run is to the south. Pedestrian access is almost unlimited for the gate that once controlled pedestrian as well as vehicular traffic has been vandalized. The 6.5 acre property has been grown over by grasses, trees and other vegetation. A chain link fence also borders the property to the north, however this too was grown over and covered with wild ivy and other climbing vegetation. It could not be determined if the fence circled around the rest of the property because of the dense vegetation. No contaminated soils or spill areas were observed while being on site.

6.2 SOIL AND AIR TARGETS

The Bloede Manufacturing Site Property is located in a manufacturing/commercial section of southwest Baltimore. There are

no persons living within 200 feet of the site property nor are there any schools or day care centers located near the site.

The nearest occupied building is a warehouse structure on the eastern end of the site property (Photographs 19 and 20). This building occupies approximately 2500 square feet and has been built within the last 5 - 10 years. It is not known to this writer who the owner of the building is or what type of storage facility it is. There was no name on the building.

The nearest residence to the site property is the Primrose Place Convalescent Center, located within 1/4 mile to the south of the site. There are no workers stationed on site.

An estimated 86,802 persons reside within a four mile radius of the site. This estimate is based upon house counts from USGS topographic maps and an average of 2.4 persons per dwelling for Baltimore City. In addition to the house counts, the target population area is approximately 25 percent urban (urban shading), which increased the population count dramatically.[19] The residential population in the ring is distributed as follows:

Distance of Ring from the site (miles)	Residential Population in the Ring
0 - 1/4	155
1/4 - 1/2	631
1/2 - 1	3580
1 - 2	19545
2 - 3	30120
3 - 4	32771
Total Population	86802

There are no designated wetland areas located on site or within 1/4 mile of the site property. There is less than one acre of palustrine scrub/shrub broad-leaved deciduous/emergent narrow leaved persistent wetlands located between the 1/4 to 1/2 mile radius segment of the site.[22] There are no terrestrial sensitive environments located on site.

6.3 SOIL AND AIR PATHWAY CONCLUSIONS

Based on the 1989 soil sample findings of National Foundation Engineering, Inc., a release of hazardous substances to the soil exposure pathway has been determined. Low levels of lead and cadmium were found in some of the soil samples in addition to some unusual odors being observed while the test pits were being excavated. While performing the site reconnaissance, no unusual odors were observed on site. There is no known analytical data

which supports air monitoring on site.

7.0 SUMMARY AND CONCLUSIONS

The Bloede Manufacturing site is an inactive glue and adhesive processing facility which operated from 1934 to 1956. P.F. Obrecht and Associates own the property and have been unsuccessful in their attempt to sell the 6.5 acre parcel. Most of the site has been grown over with lush vegetation and the buildings that were once on site have either been demolished or victimized by arson. Recent accounts of nuisance dumping have been observed on site. Several waste piles of old brick, wooden pallets, scrap metal and commercial and household refuse have been witnessed as being on the site property. The gate that once led into the property has been vandalized.

Analytical results indicate that heavy metals such as cadmium and lead have been detected in soil borings taken on site. Maidens Choice Run, a fishery that travels along the southern border of the site would be most effected by a release to surface water.

There is no known clean up work being completed by the owner, the State of Maryland, or the Environmental Protection Agency at this time.

REFERENCES

References

1. USGS 7.5 minute topographic map, Baltimore West, Maryland quadrangle 1953. Photorevised 1966 and 1974.

2. ADC Map, Baltimore City/Baltimore County, Maryland. Stock # 20500.

3. National Foundation Engineering, Inc. Environmental Assessment on 700-708 block Caton Avenue site. August 10, 1989.

4. Land Records Office, Baltimore City, Maryland.

5. Personal Contact, Mr. Charles Harrison - 2121 Parksley Ave. Baltimore, Maryland 21230. Private citizen and former employee, Bloede Manufacturing.

6. Environmental Management Group, Inc. Visual inspection of asbestos removal efforts at 700 - 708 Caton Avenue site. October 10, 1989.

7. USGS Weather Bureau Technical Paper 29, 1958.

8. U.S. Department of Agriculture, Soil Conservation Service. Soil Survey of Baltimore County, Maryland, March 1976.

9. Vokes E., Harold and Edwards, Jonathan Jr., Geography and Geology of Maryland, Maryland Geological Survey, Bulletin 19, 1957.

10. Chapelle, F.H., Hydrogeology, Digital Solute-Transport Simulation, and Geochemistry of the Lower Cretaceous Aquifer System near Baltimore, Maryland. Report of Investigations No. 43, Maryland Geological Survey, Department of Natural Resources, 1985.

11. Dingman, R.J. and H.F. Ferguson, The Water Resources of Baltimore and Harford Counties, Department of Geology, Mines and Water Resources, Bulletin 17, Baltimore, Maryland 1956.

12. Crowley, W.P., J. Reinhardt, E.T. Cleaves, Geologic Map of Baltimore County and City, Maryland Geological Survey, 1976.

13. Maryland Department of Natural Resources, Water Resources Administration, The Quality and Natural Quantity of Groundwater in Maryland, 1987.

14. MDE/Water Management Administration, Water Supply Program July 1993.

15. USGS 7.5 minute topographic map, Baltimore East, Maryland

quadrangle 1953. Photorevised 1966 and 1974.

16. USGS 7.5 minute topographic map, Relay, Maryland quadrangle 1957. Photorevised 1966 and 1974.

17. USGS 7.5 minute topographic map, Curtis Bay, Maryland quadrangle 1969. Photorevised 1974.

18. USGS 7.5 minute topographic map, Sparrows Point, Maryland quadrangle 1969. Photorevised 1974.

19. U.S. Census Population data, 1990.

20. Federal Emergency Management Agency, Flood Insurance Rate Map, Panel No. 240087 0010D. Map revised September 30, 1988.

21. U.S. Department of the Interior, Fish and Wildlife Service, Wetlands Inventory Map, Baltimore West, Md. April 1981.

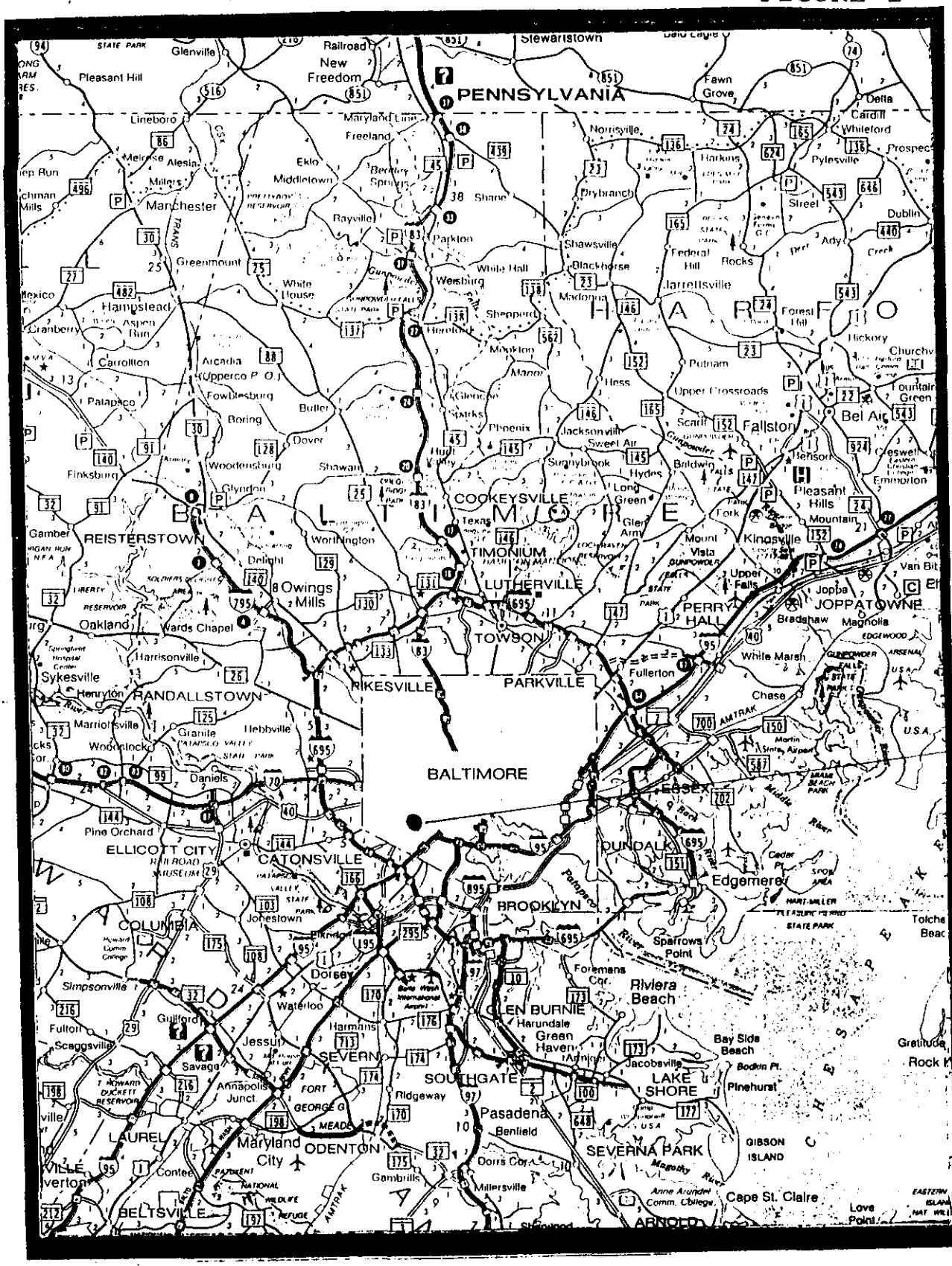
22. U.S. Department of the Interior, Fish and Wildlife Service, Wetlands Inventory Map, Baltimore East, Md. April 1981.

23. U.S. Department of the Interior, Fish and Wildlife Service, Wetlands Inventory Map, Curtis Bay, Md. April 1981.

Bloede Manufacturing
(MD-466)

REGIONAL HIGHWAY MAP

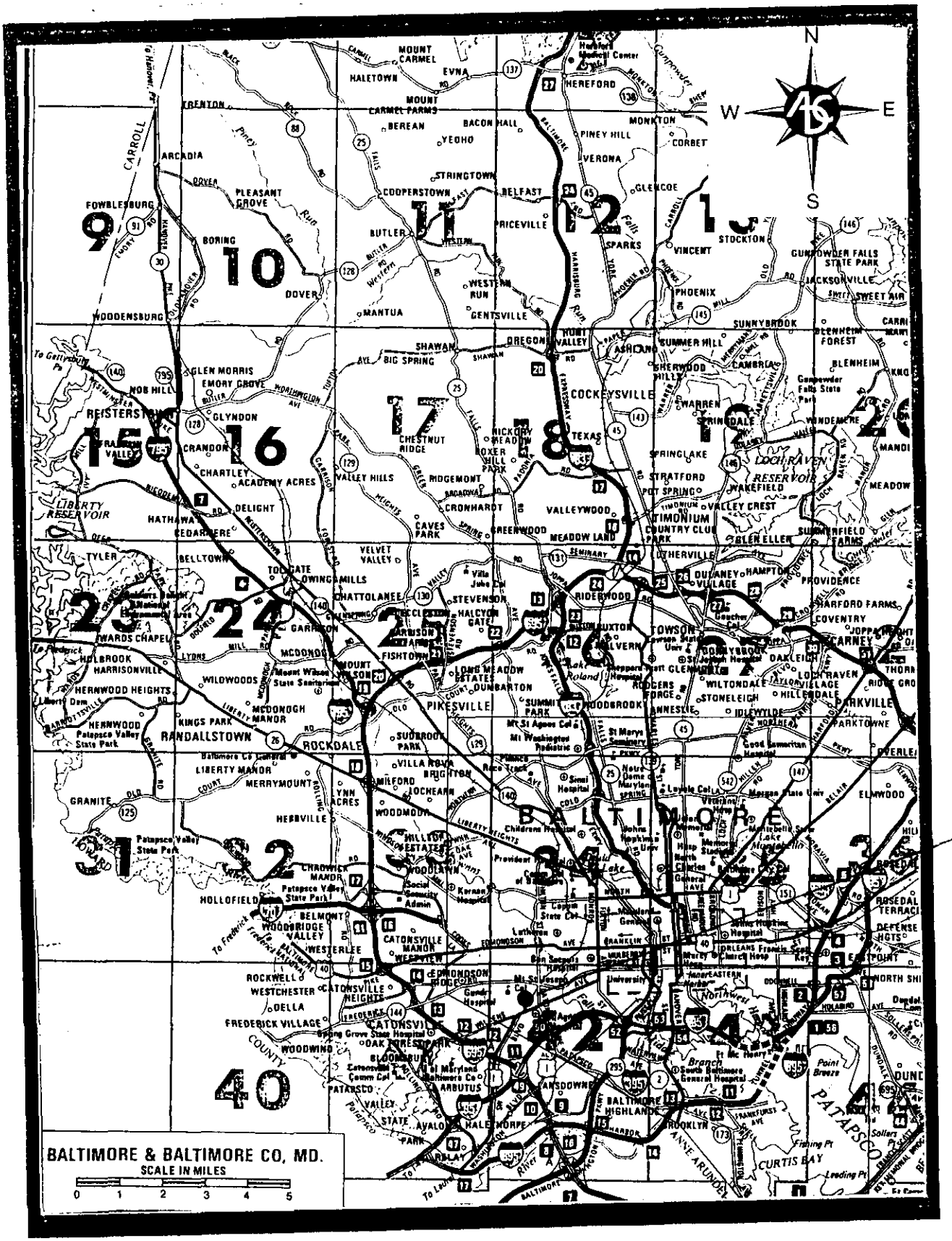
FIGURE 1



State Highway Administration, 1990

COUNTY MAP

FIGURE 2

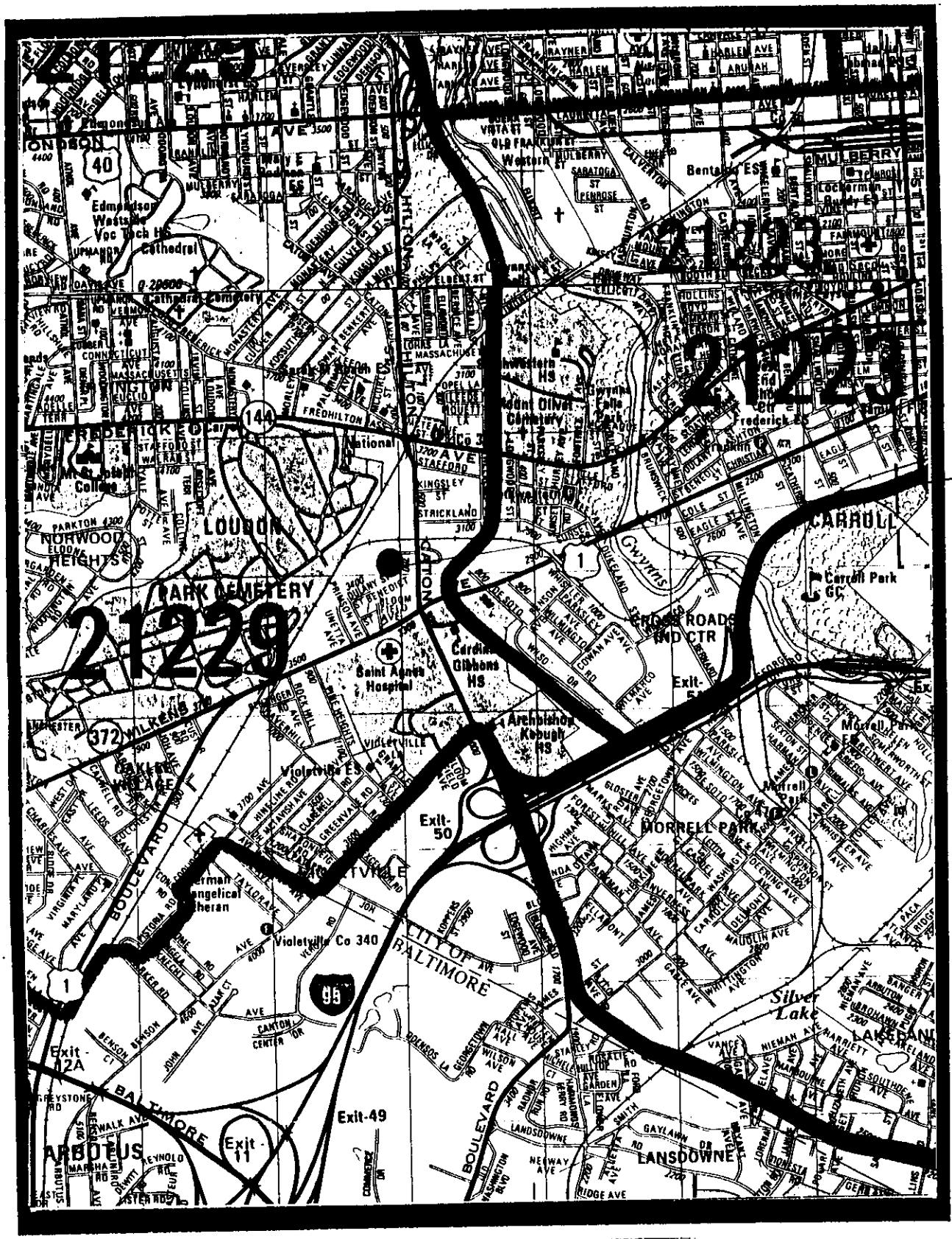


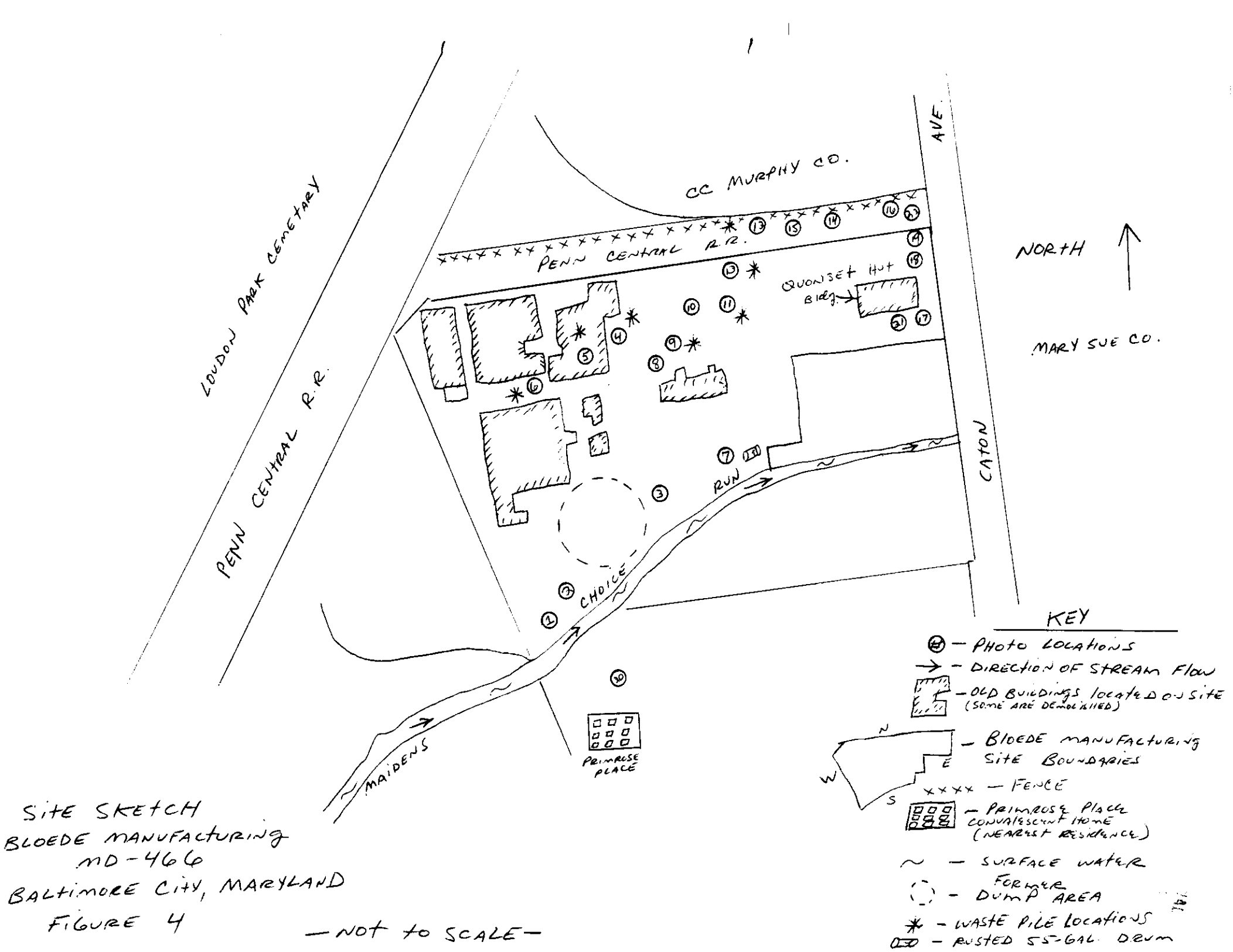
Bloede Manufacturing
(MD-466)

Bloede Manufacturing
(MD-466)

STREET MAP

FIGURE 3

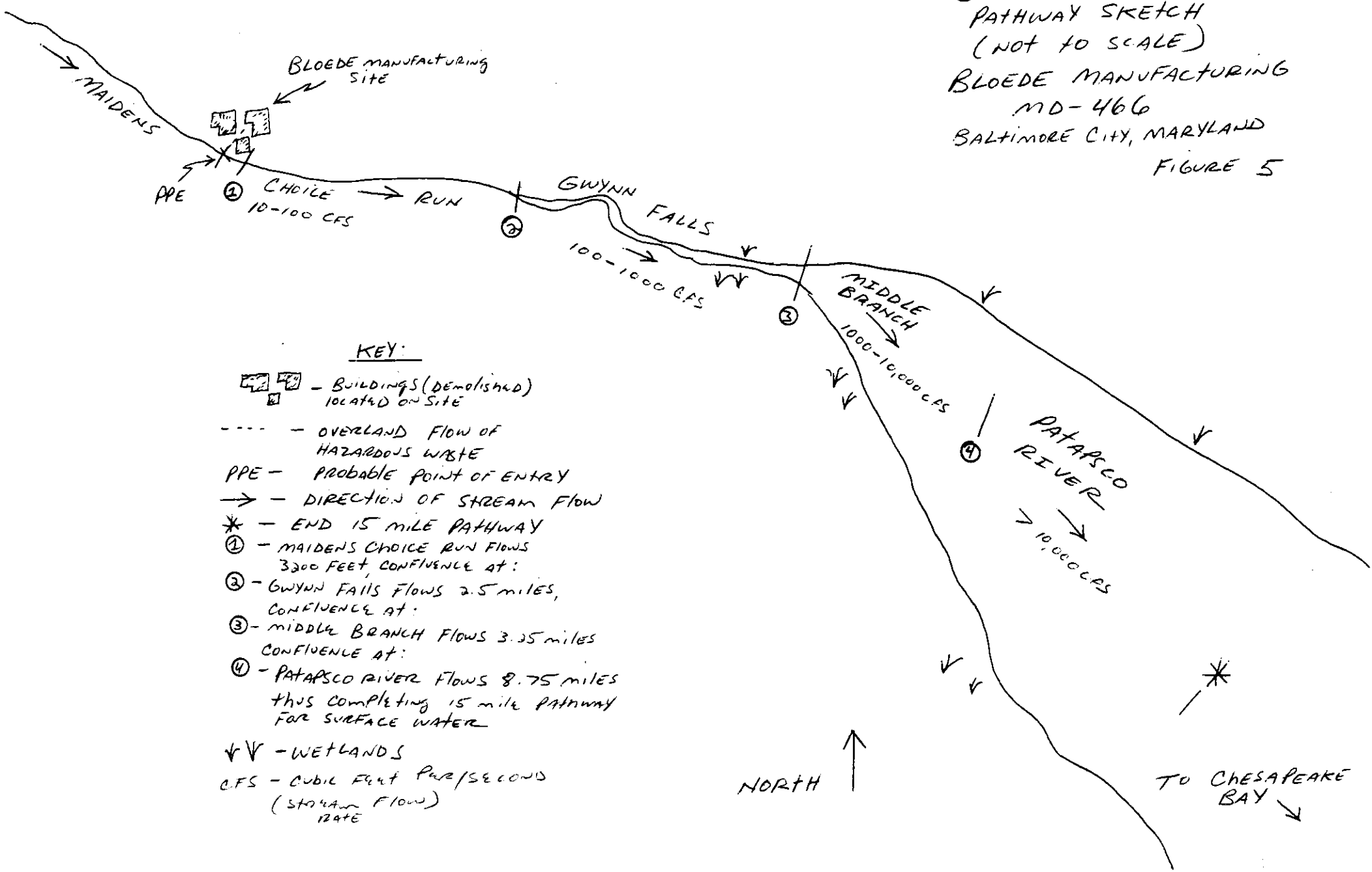


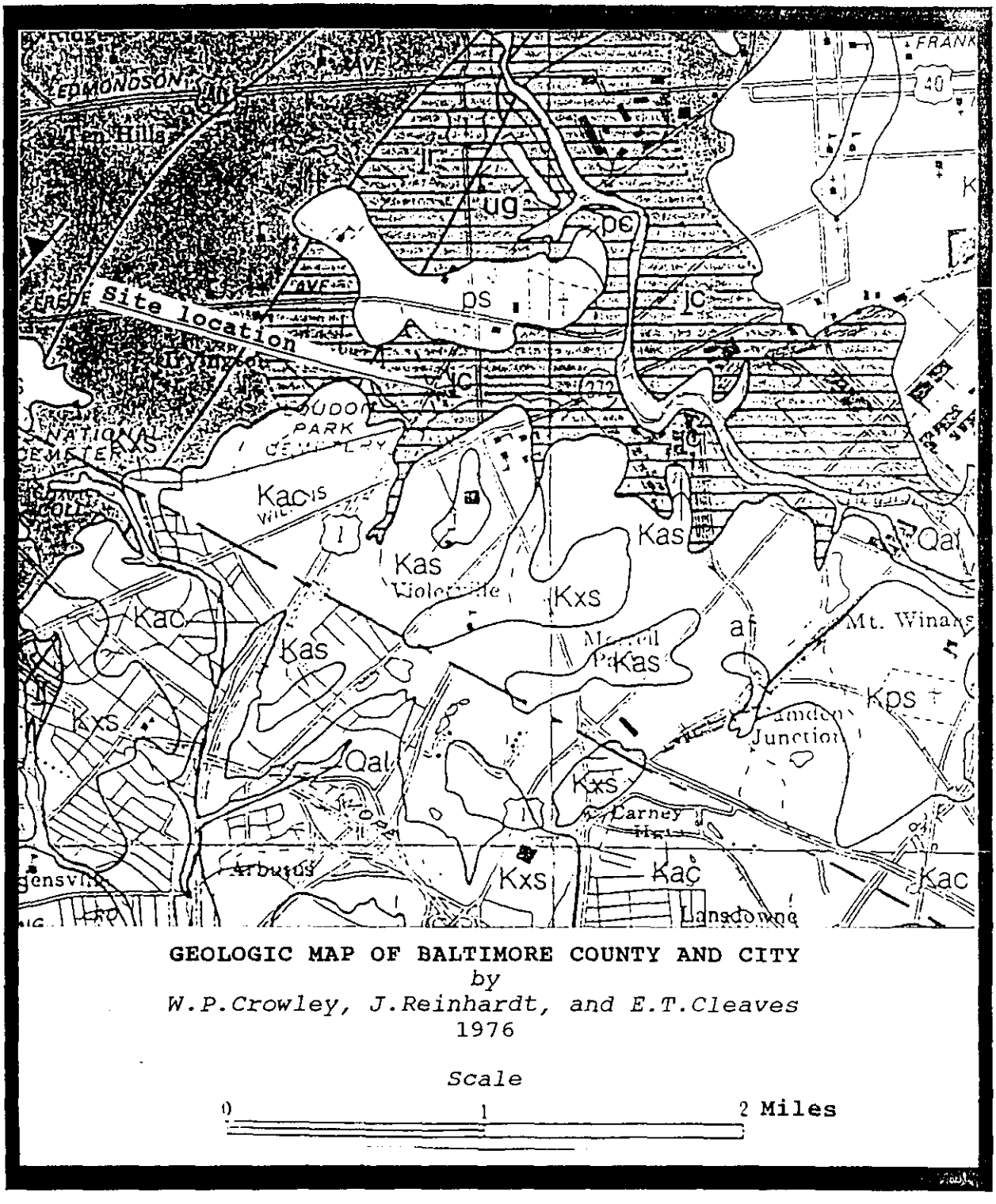


SITE SKETCH
BLOEDE MANUFACTURING
MD-466
BALTIMORE CITY, MARYLAND
FIGURE 4

—NOT TO SCALE—

SURFACE WATER MIGRATION PATHWAY SKETCH
(NOT TO SCALE)
BLOEDE MANUFACTURING
MD-466
BALTIMORE CITY, MARYLAND
FIGURE 5





GEOLOGIC MAP OF BALTIMORE COUNTY AND CITY

by

W.P.Crowley, J.Reinhardt, and E.T.Cleaves

1976

Scale

Figure 6 - Geologic Map

Bloede Manufacturing
(MD-466)

PHOTOGRAPHS

EPA REGION III
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # 445406
PAGE # _____

IMAGERY COVER SHEET
UNSCANNABLE ITEM

Contact the CERCLA Records Center to view this document.

SITE NAME Bloede Manufacturing Property
OPERABLE UNIT 00
SECTION/BOX/FOLDER 1C/BOX 1/1.001

REPORT OR DOCUMENT TITLE Preliminary Assessment
DATE OF DOCUMENT Aug. 1, 1993
DESCRIPTION OF IMAGERY Site photos

NUMBER AND TYPE OF IMAGERY ITEM(S) 22 site photos

APPENDIX

ORIGINAL
(Red)

APPENDIX 1

ORIGINAL (Red)

EMG Environmental Management Group, Inc.
11421 Cronhill Drive
Suite C
Owings Mills, MD 21117
Telephone: (301) 356-0660
Fax: (301) 356-0663

October 10, 1989

Mr. Burriss
3224 Toone Street
Baltimore, Maryland 21224

RE: Visual Inspection of Asbestos Removal Efforts for Reliable Freight Brokerage, Inc., 700-708 Caton Avenue, Baltimore, Maryland, Project #89-0105-93

Dear Mr. Burriss,

Environmental Management Group, Inc. (EMG), has conducted the final visual inspection of the above referenced project.

The initial inspection performed by (EMG) on October 9, 1989, identified approximately twenty five (25) linear feet of asbestos containing building material (ACBM) in the form of steam pipe insulation located behind the perimeter brick knee wall of the Quonset Hut Building. Additionally, two (2) one (1) foot strips of ACBM were found in one (1) of the four (4) remaining structures.

Power Components Systems, Inc. (PCS) was notified of the remaining ACBM and ultimately completed removal on October 10, 1989. EMG met with David Anderson of PCS to verify the location of ACBM and visually inspect the areas on October 10, 1989. All ACBM previously identified has been removed.

If you have any questions or if I may be of further assistance, please don't hesitate to contact the undersigned at (301) 356-0660.

Sincerely,
Environmental Management Group, Inc. by

Patrick T. Connor

Patrick T. Connor
Vice President

APPENDIX 2

National Foundation Engineering, Inc.

3401 CARLINS PARK DRIVE • BALTIMORE, MARYLAND 21215 • TELEPHONE 367-1400

ORIGINAL (Red)

August 10, 1989

AUG 14 1989

Miss Susan O'Brecht
O'Brecht & Associates, Inc.
9475 Deereco Road
Timonium, Maryland 21093

YI
All Partners
+ file

Re: Supplemental Investigation
700-708 S. Caton Avenue
Baltimore
P.O. No. 20699
NFE Contract No. 89-1640
Project No. 89-169

Dear Miss O'Brecht:

We have completed the supplemental investigation at the above referenced site. This letter report presents the results of our findings.

A subsurface investigation at the site had been conducted in July 1989, and a report was submitted to you on June 26, 1989. The investigation had included testing one soil sample for presence of hazardous waste. While the test had indicated that there was no hazardous waste present in the sample, we had observed a strong foul odor in some soil samples, specially in boring B-3.

In July 1989, five additional test pits were excavated, and two borings were drilled, to attempt to locate the area of the foul odor. None of the samples recovered from the test pits or the borings had any odor at all.

In August 1989, six additional borings were drilled, and four soil samples were tested for the presence of heavy metals. Again, no foul odor was observed. The test results indicate that the samples do not contain any hazardous material, except lead (in one sample) and cadmium (in another sample). These are present in very low levels, less than what is currently permissible.

Our field inspection revealed the presence of some oil tanks and a drum that contained hydraulic oil.

Photographs of the area are included herewith.

Re: Supplemental Investigation
700-708 S. Caton Avenue (89-169)
NFE Contract No. 89-1640
August 10, 1989
Page 2

Based on the field investigation and the laboratory tests conducted on five soil samples, it appears that the site does not contain hazardous material.

If you have any questions or need additional information, please call us.

Very truly yours,

NATIONAL FOUNDATION ENGINEERING, INC.

Sachinder N. Gupta

Sachinder N. Gupta, P.E.

SNG/dh.476

National Foundation Engineering, Inc. NFE

SUPPLEMENTAL SUBSURFACE INVESTIGATION
700-708 S. CATON AVENUE
BALTIMORE, MARYLAND

NFE CONTRACT NO.89-1640

ORIGINAL (Red)

National Foundation Engineering, Inc.

NFE

3401 CARLINS PARK DRIVE • BALTIMORE, MARYLAND 21215 • TELEPHONE 367-1400

December 27, 1989

Mr. Martin J. Storck
O'Brecht & Associates, Inc.
9475 Deereco Road
Timonium, Maryland 21093

Re: Supplemental Subsurface Investigation
700-708 S. Caton Avenue
Division 01-D
O'Brecht Job No. 89-034
NFE Project No. 89-1640

Dear Mr. Storck:

As per your request, we have completed the additional subsurface investigation at the above referenced site.

In June 1989, we had conducted a preliminary geotechnical investigtion addressing the suitability of the site for supporting the proposed single story structure. Since then, the location of the proposed building has been changed. Therefore, an additional subsurface investigation was conducted at the relocated building area in December 1989. This letter report presents the results of the supplemental investigation.

The site is bounded by Mainden's Choice Run to the south, Pennsylvania Railroad to the north, and Caton Avenue to the east. Currently, the site contains some abandoned buildings, some foundation structures and parking lots. The site slopes down gently from north to south and varies in elevation from about El.146 in the north portion to about El.136 in the south portion, and slopes down steeply towards the stream (Maiden's Choice Run).

The proposed first floor elvation of the building is not known to us at this stage. The scope of our services was to drill a total of four (4) additional borings; evaluate the data and prepare a geotechnical report of our findings and recommendations.

The field investigation was conducted in December 1989. A total of four (4) borings were drilled at the approximate locations shown on Figure 1: " Test Boring Location Plan". The borings

were drilled using a truck mounted drill rig. The holes were advanced using hollow stem augers. Standard penetration tests were conducted and split spoon samples were obtained in every boring at depth intervals of 2.5 feet to 5 feet. Representative portion of each sample was placed in an air tight glass jar and sent to the laboratory. Groundwater levels were monitored in every boring during drilling and after 24 hours of completion of drilling (in boring B-1).

The depths of the borings varied from 20 feet to 40 feet. Auger refusal was encountered in boring B-2 at a depth of 20 feet.

The edited boring logs are included in the Appendix.

All samples were visually classified in the laboratory by a geotechnical engineer to corroborate and/or modify the field classification. No other tests were conducted.

Generally, the subsurface conditions consist of two strata:

Stratum A (Fill): Basically the fill consists of brown/white/tan silty clayey sand with varying amounts of clay, brick, concrete, and asphalt fragments. The fill also contains some localized soft pockets of gray silty clay/clayey silt. The location (plan and elevations) of such soft pockets can not be ascertained with any reliability. The standard penetration resistance varies considerably from about as low as about 3 blows/foot to about 50 blows/0.2 ft. The thickness of the fill varies from about less than a foot in the north portion to about 20 feet in the south portion of the building area. The area below about El.140± appears to be fill.

Stratum B: The fill is underlain by brown/gray/white silty sand/sandy silt with gravel and/or rock fragments extending to the bottom of the boring. The standard penetration resistance varied from about 15 blows/foot at shallow depths (north portion) to about 50 blows/0.5 ft. at the bottom of the borings.

Groundwater is anticipated to be encountered at some depth in excess of 15 feet.

Generalized subsurface profiles are shown on Figure 2 and Figure 3.

The available data was evaluated with respect to the proposed structure at the revised location (December 1989) and is discussed below. It should be noted that the building data (i.e. proposed first floor elevation and the proposed grades) is not available to us at this stage. The availability of such data and the actual location of the proposed building could modify and/or change the evaluations and recommendations discussed below.

It is our understanding that the proposed building will be a single story warehouse with relatively light loads. It is also our understanding that the existing structures and existing foundation will be removed.

The construction of the proposed building will probably need some regrading of the site. Since the proposed first floor elevation of the buildings is not known to us at this stage, the actual thickness of the fill and the depth of cut can not be determined.

Prior to placing any fill, the areas that will receive the fill should be stripped of all topsoil, vegetation and pavement. The exposed surface should be compacted and proof-rolled. All areas that pump or appear soft should be undercut and should be replaced with engineered fill. All load bearing fill, whether under buildings or under pavements should be placed in 9-inch thick layers and each layer should be compacted to 95% of its maximum dry density as determined by ASTM D 1557. The fill material could be any soil free of organics, construction debris and rocks larger than 6-inch size.

The revised location of the proposed building will place the northern portion of the building in the virgin ground and the south portion in the existing unengineered fill (stratum A). The natural ground in the north portion of the building area is considered to be suitable for supporting lightly loaded structures. Since the existing fill (stratum A) at the site contains a number of localized pockets of soft soil at different elevations, the fill is most likely to cause differential settlement to the proposed building. Therefore several options were considered:

(a) The existing fill could be undercut and be replaced with engineered fill as discussed previously. The thickness of the fill (stratum A) is anticipated to vary from about 2 feet in the north portion to about 25 feet in the south portion. The building could be founded on shallow spread footings bearing on virgin ground or on the compacted fill. An allowable bearing capacity of 2500 psf could be used to design the footing. All exterior footings should be founded at least 30 inches below exterior finished grade for frost protection. The bottom edge of all footings should be at least 10 feet horizontally away from the face of the slope. Most of the on-site soil could be used as fill.

However, it would probably be too wet, and would require some drying to achieve the specified compaction. Some of the existing fill will have to be wasted, becasue of its organic content.

(b) Use deep foundations: The building could be founded on driven timber piles. The allowable bearing capacity of the timber piles would be 20 T/pile. It is anticipated that the length of the timber piles would vary considerably, from about 15 feet at the north end to about 35 feet (approximately El.136±) at the south end from the existing grade. All piles should be driven to an allowable bearing capacity of 20 T as determined by the ENR formula.

It is our opinion that option (b) would be preferable to option (a).

The floor slab should be designed as a slab-on-grade and should be isolated from the columns and walls to permit minor movements. A gravel/stone blanket, 6 inches thick, should be provided under the floor slab. A water proof PVC membrane should be installed between the concrete slab and the gravel/stone blanket. The slab may be designed using a coefficient of subgrade reaction of 120 tons/cu.ft.

All load bearing surface should be checked and certified prior to the placement of concrete.

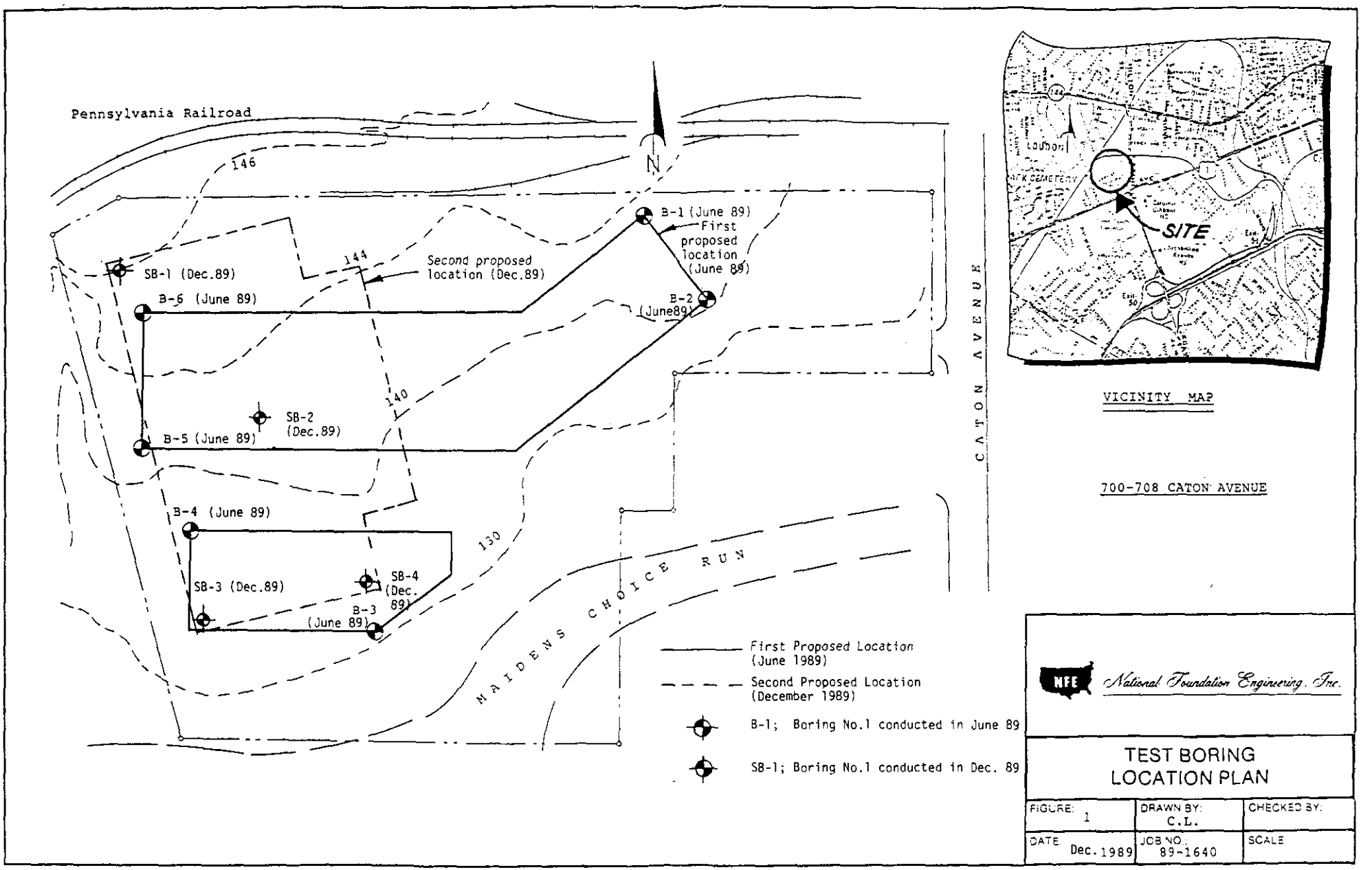
If you have any questions or need additional information, please contact us.

Very truly yours,

NATIONAL FOUNDATION ENGINEERING, INC.

Jeyakumar Ramasamy, P.E.
Geotechnical Engineer

JR/dh.773
Enclosures



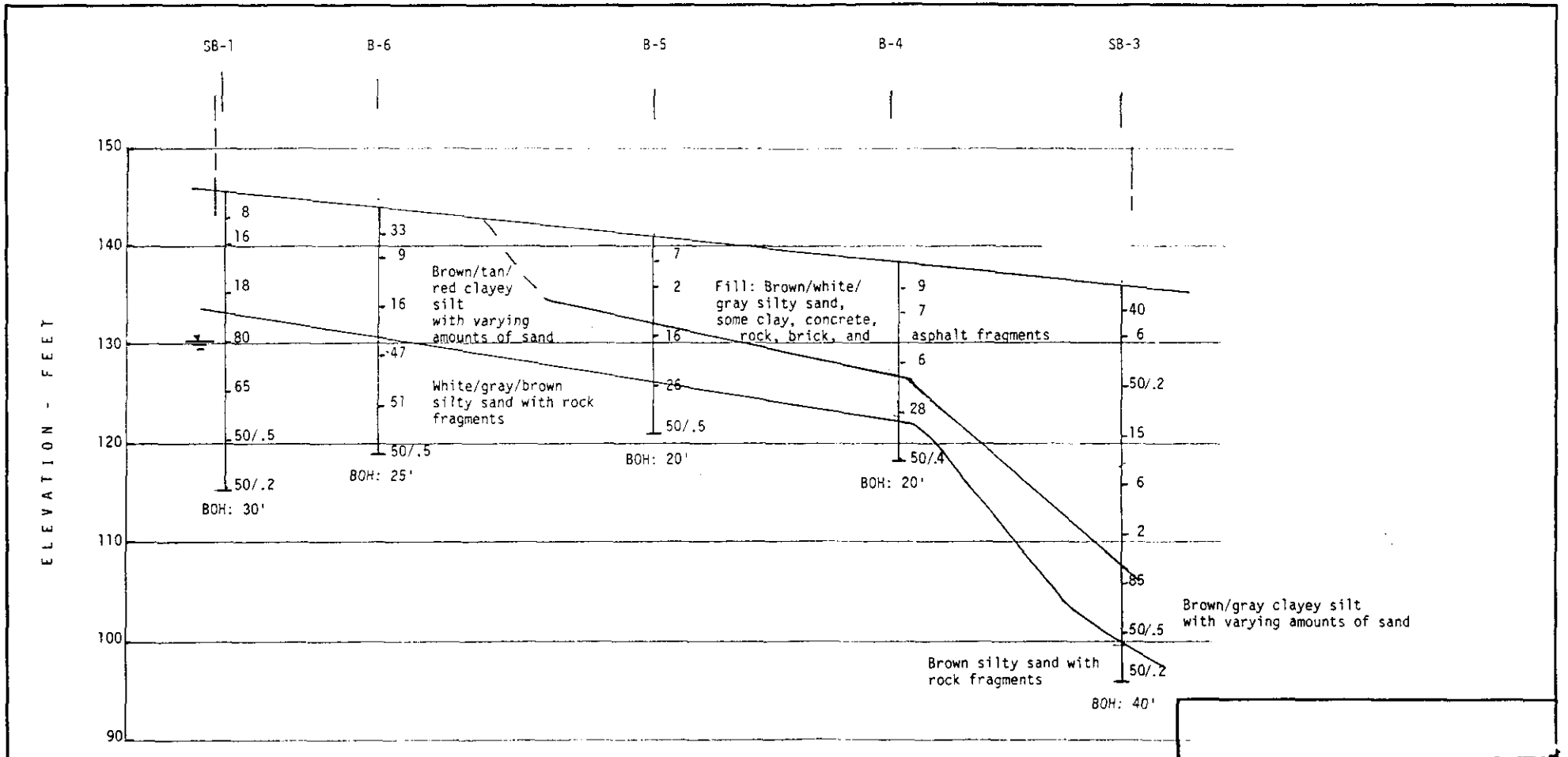
VICINITY MAP

700-708 CATON AVENUE

National Foundation Engineering, Inc.

TEST BORING LOCATION PLAN

FIGURE: 1	DRAWN BY: C.L.	CHECKED BY:
DATE: Dec. 1989	JOB NO.: 89-1640	SCALE:

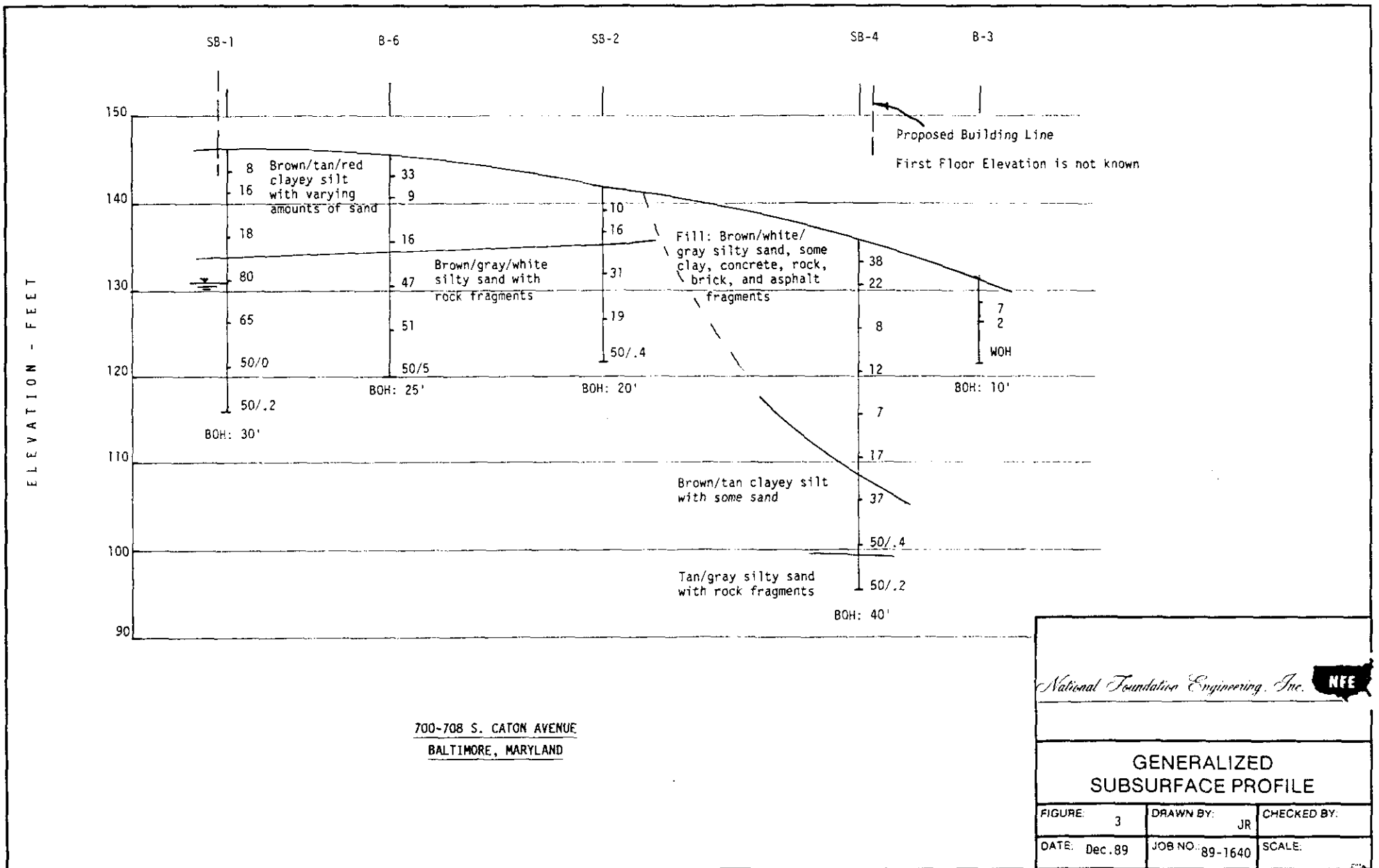


700-708 S. CATON AVENUE
BALTIMORE, MARYLAND

National Foundation Engineering, Inc. NFE

GENERALIZED SUBSURFACE PROFILE

FIGURE: 2	DRAWN BY: JR	CHECKED BY:
DATE: Dec.89	JOB NO.: 89-1640	SCALE:



700-708 S. CATON AVENUE

BALTIMORE, MARYLAND

National Foundation Engineering, Inc. NFE

GENERALIZED SUBSURFACE PROFILE

FIGURE: 3	DRAWN BY: JR	CHECKED BY:
DATE: Dec.89	JOB NO.: 89-1640	SCALE:

ORIGINAL

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. | Boring #: SB-1
Project Name: 700-708 S. Caton Avenue | Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum: | Hammer Wt. 140 Lbs. | Hole Diameter: | Foreman: J. Sies
Surf. Elev. Ft. | Hammer Drop 30 In. | Rock Core Dia: | Inspector:
Date Started 12-11-89 | Pipe Size 1 3/4 In. | Boring Method HSA | Date Completed 12-11-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	Blows/6"	NO.	TYPE	REC. %	BORING & SAMPLING NOTES
	SURFACE	0.0							
	Brown/tan/red clayey silt with varying amounts of sand				1-4-4	1	DS	1.0	6½" cinders Water encountered at 24.0' Hole caved at 23.0'
			5		4-6-18	2	DS	1.5	
			10		8-8-10	3	DS	1.5	
	Brown/gray/tan silty sand		15		10-25 48	4	DS	1.4	
	White/brown silty sand with rock fragments		20		8-20 45	5	DS	1.4	
	White silty sand with rock fragments		25		50/0.3	6	DS	0.5	
	Bottom of Hole at 30.0'		30		50/0.2	7	DS	0.2	

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION 24.0 FT.
AFTER 24 HRS 15.0 FT.
AFTER 24 HRS FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

ORIGINAL (Red)

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. — Boring #: SB-2
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum: — Hammer Wt. 140 Lbs. — Hole Diameter: — Foreman: J. Sies
Surf. Elev. Ft. — Hammer Drop 30 In. — Rock Core Dia: — Inspector:
Date Started 12-11-89 — Pipe Size 1 3/4 In. — Boring Method HSA — Date Completed 12-11-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC. %	BORING & SAMPLING NOTES
	SURFACE	0.0							
	Reddish-brown silty sand, some clay				4-5-5	1	DS	1.5	1½" Asphalt 1½" Gravel No water encountered Hole caved at 17.0'
			5		5-7-9	2	DS	0.9	
	White silty sand								
			10		10-14 17	3	DS	0.5	
	Brown/tan sandy silt, some clay								
			15		6-5-14	4	DS	0.9	
	Brown silty sand with rock fragments								
			20		50/0.4	5	DS	0.9	
	Bottom of Hole at 20.0'								
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.
AFTER 24 HRS. ____ FT.

BORING METHOD
HSA — Hollow Stem Auger
CFA — Continuous Flight Auger
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. | Boring #: SB-3 (1 of 2)
Project Name: 700-708 S. Caton Avenue | Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum | Hammer Wt. 140 Lbs. | Hole Diameter | Foreman: J. Sies
Surf. Elev. Ft. | Hammer Drop 30 In. | Rock Core Dia | Inspector
Date Started: 12-12-89 | Pipe Size 1 3/4 In. | Boring Method: HSA | Date Completed: 12-12-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	Blows/6"	NO.	TYPE	REC. %	BORING & SAMPLING NOTES
	SURFACE	0.0							
	Fill: Brown/white/gray silty sand, some clay. Concrete, rock, asphalt fragments				3-21 19	1	DS	1.0	No Topsoil No water encountered Hole caved at 25.5'
			5		3-3-3	2	DS	1.0	
			10		50/0.2	3	DS	0.2	
			15		21-10 5	4	DS	1.0	
	Gray sandy clay		20		1-2-4	5	DS	1.1	
	Brown/gray clayey sand		25		1-1-1	6	DS	1.3	
	Brown clayey sand with rock fragments		30		22-35 50	7	DS	0.1	

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. | Boring #: SB-3 (2 of 2)
Project Name: 700-708 S. Caton Avenue | Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum | Hammer Wt. 140 Lbs. | Hole Diameter | Foreman: J. Sies
Surf. Elev. Ft. | Hammer Drop 30 In. | Rock Core Dia | Inspector
Date Started 12-12-89 | Pipe Size 1 3/4 In. | Boring Method HSA | Date Completed 12-12-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	Blows/6" *	NO.	TYPE	REC.	BORING & SAMPLING NOTES
	SURFACE	0.8						%	
	Brown/gray sandy clay				50/0.3	8	DS	0.2	
	Brown silty sand with rock fragments		35		50/0.2	9	DS	0.8	
	Bottom of Hole at 40.0'		40						
			45						
			50						
			55						
			60						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.
AFTER 24 HRS. ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. — Boring #: SB-4 (1 of 2)
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum: — Hammer Wt.: 140 Lbs. — Hole Diameter: — Foreman: J.Sies
Surf. Elev.: Ft. — Hammer Drop: 30 In. — Rock Core Dia.: — Inspector:
Date Started: 12-12-89 — Pipe Size: 1 3/4 In. — Boring Method: HSA — Date Completed: 12-12-89

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity, Size, Proportions)	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC. %	BORING & SAMPLING NOTES
	SURFACE	8.0							No Topsoil
	Fill: Dark brown/brown/ gray/tan silty sand, some clay, brick, rock and asphalt fragments				10-17 21	1	DS	1.0	No water encountered
					3-10 12	2	DS	1.0	Hole caved at 28.0'
					4-4-4	3	DS	1.5	
					2-10 2	4	DS	0.6	
					2-3-4	5	DS	1.5	
					4-6-11	6	DS	0.1	
	Brown/tan clayey silt				11-16 21	7	DS	1.5	

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.
AFTER 24 HRS. ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: Obrecht & Associates, Inc. — Boring #: SB-4 (2 of 2)
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Division 01-D

SAMPLER

Datum: — Hammer Wt. 140 Lbs. — Hole Diameter: — Foreman: J. Sies
Surf. Elev. ____ Ft. — Hammer Drop 30 In. — Rock Core Dia: — Inspector:
Date Started 12-12-89 — Pipe Size 1 3/4 In. — Boring Method HSA — Date Completed 12-12-89

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity, Size, Proportions)	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.0						%	
	Brown clayey sand				50/0.4	8	DS	0.2	
	Tan/gray silty sand with rock fragments		35						
			40		50/0.2	9	DS	0.2	
	Bottom of Hole at 40.0'		45						
			50						
			55						
			60						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

3401 CARLINS PARK DRIVE • BALTIMORE, MARYLAND 21215 • TELEPHONE 367-1400

ORIGINAL (Red)

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON COHESIVE SOILS

(Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	-	5 blows/ft. or less
Loose	-	6 to 10 blows/ft.
Medium Dense	-	11 to 30 blows/ft.
Dense	-	31 to 50 blows/ft.
Very Dense	-	51 blows/ft. or more

PARTICLE SIZE IDENTIFICATION

Boulders	-	8 inch diameter or more
Cobbles	-	3 to 8 inch diameter
Gravel	- Coarse	- 1 to 3 inch
	Medium	- ½ to 1 inch
	Fine	- ¼ to ½ inch
Sand	- Coarse	- 0.6mm to ¼ inch (Dia. of pencil lead)
	Medium	- 0.2mm to 0.6mm (Dia. of broom straw)
	Fine	- 0.05mm to 0.2mm (Dia. of human hair)
		- 0.06mm to 0.002mm (Cannot see particles)

COHESIVE SOILS

(Clay, Silt and Combinations)

CONSISTENCY

Very Soft	-	3 blows/ft. or less
Soft	-	4 to 5 blows/ft.
Medium Stiff	-	6 to 10 blows/ft.
Stiff	-	11 to 15 blows/ft.
Very Stiff	-	16 to 30 blows/ft.
Hard	-	31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

CLASSIFICATION on logs are made by visual inspection

STANDARD PENETRATION TEST - Driving a 2.0" O.D., 1 3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to NATIONAL to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drilling log (Example - 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.).

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION (continued)

STRATA CHANGES - In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (___) represents an actually observed change, a dashed line (---) represents an estimated change.

GROUND WATER observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography etc., may cause changes in the water levels indicated on the logs.

THE BORING LOGS and related information depict subsurface conditions only at these specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occuring at these boring locations. Also, the passage of time may result in a change in the subsurface soil and ground water conditions at these boring locations.

HE STRATIFICATION LINES represent the approximate boundary between soil and rock types as determined in the drilling and sampling operation. Some variation may also be expected vertically between samples taken. The soil profile, water level observations and penetration resistances presented have been made with reasonable care and accuracy and must be considered only an approximate representation of subsurface conditions to be encountered at the particular location.

DISINTEGRATED ROCK is defined as residual earth materials with a standard penetration resistance between 60 blows per foot and refusal, it may exhibit certain rock-like qualities. Some denser portions of this material could possess characteristics of soft rock and may require rock excavation methods for removal.

SUBSURFACE INVESTIGATION
700-708 CATON AVENUE
BALTIMORE, MARYLAND
NFE PROJECT NO. 89-1640

National Foundation Engineering, Inc.

3401 CARLINS PARK DRIVE • BALTIMORE, MARYLAND 21215 • TELEPHONE 367-1400

June 26, 1989

O'Brecht & Associates, Inc.
9475 Deereco Road
Timonium, MD. 21093

Attn: Mr. Martin J. Storck
President

Re: Subsurface Investigation
700-708 S. Caton Avenue
Div. 01-D
O'Brecht Job No. 89-034
Purchase Order No. 20699
NFE Project No. 89-1640

Dear Mr. Storck:

Pursuant to your Purchase Order No. 20699 dated June 13, 1989 and your verbal authorization, we have completed the subsurface investigation at the above-referenced site.

Transmitted herewith are three (3) copies of the geotechnical report.

We appreciate the opportunity to have worked with you on this project and hope to be continuing service.

Very truly yours,

NATIONAL FOUNDATION ENGINEERING, INC.

Edward N. Gupta

Sachinder N. Gupta, P.E

SNG/ms

INTRODUCTION

This report presents the results of the site evaluation investigation conducted in association with the development of the 6.5 acre lot on Caton Avenue, Baltimore, Maryland. The investigation was conducted for O'Brecht & Sons and was pursuant to their Purchase Order No. 20699 dated June 13, 1989.

SITE AND PROJECT DESCRIPTION

The site is bounded by Caton Avenue on the east, Maiden's Choice Run on the south and Pennsylvania Railroad on the north. It occupies about 6.5 acres. Topographically, the site slopes down from north to south and varies in elevation from about Elev. 146 in the northwest corner to about Elev. 136 at the south. It is proposed to construct a single story, storage building, occupying about 61,500 sq. ft. in the northern portion and a warehouse/ storage building about 20,000 sq. ft. in plan in the southern portion.

The main building will have the first floor at Elev. 142 and the second building will have the floor slab at Elev. 139.

PURPOSE AND SCOPE

The purpose of the investigation was to conduct a preliminary geotechnical investigation to determine the suitability of the site for supporting the proposed structures. The scope of our services was to drill a total of 6 borings, each 15 ft. deep; evaluate the data and prepare a report of our findings and recommendations.

FIELD INVESTIGATION

The field investigation was conducted in June 1989. A total of 6 borings were drilled at the approximate locations shown on Figure 1: "Test Boring Location Plan". The borings were drilled using a truck mounted drill rig. The holes were advanced using a hollow stem auger. Standard penetration tests were conducted and split spoon samples were obtained in every boring at depth intervals of 2.5 ft. to 5 ft. Representative portion of each sample was placed in an air tight glass jar and sent to the laboratory. Groundwater levels were monitored in every boring during drilling. All borings were backfilled at completion of drilling.

The depths of the borings varied from about 10 ft. to about 25 ft. Auger refusal was encountered in borings B-1, B-2, B-4, B-5 and B-6 at depths of 15 ft., 18.5 ft., 20 ft. and 25 ft., respectively.

The edited logs of the borings are included in the Appendix.

LABORATORY TESTING

All samples were visually examined in the laboratory by a geotechnical engineer to corroborate and/or modify the field classifications. No other tests were conducted.

SUBSURFACE CONDITIONS

The subsurface conditions at the site vary considerably. The northern portion of the site, about Elev. 138 (±) appears to be natural ground. The subsurface conditions here generally consist of medium stiff to hard sandy clayey silt, with pockets of silty sand. Standard penetration resistance varied from about 9 blows/ft. to about 50 blows/ft. and is generally greater than 15 blows/ft.

The area below about Elev. 138 (±) appears to be fill, specially the southern portion of the site (borings B-3, B-4 and B-5). The fill is unengineered and has a foul odor. The thickness of the fill varied from about 6 ft. to about 10 ft. Standard penetration resistance varied from about 0 blows/ft. to 6 blows/ ft. It is underlain by medium dense sandy silt.

Groundwater is below Elev. 124. However, some perched water was encountered in B-1 at a depth of about 1 ft.

EVALUATIONS AND RECOMMENDATIONS

The available data was evaluated with respect to the proposed development and is discussed below.

Site Preparation

The site development will involve some minor cuts and fills, less than 8 ft. deep. Prior to placing any fill, the areas that will receive the fill should be stripped of all topsoil and vegetation. The exposed surface should be compacted and proof-rolled. The existing stone/pavement need not be removed, if it does not pump. All areas that pump or appear soft should be undercut and should be replaced with engineered fill. All load bearing fill, whether under buildings or under pavements should be placed in 9-inch thick layers and each layer should be compacted to 95% of its maximum dry density as determined by ASTM D 1557. The fill material could be any soil free of organics, debris and rocks larger than 6-inch size.

The southern portion of the site (below about Elev. 138) is an unengineered fill. The entire existing fill (varying in thickness from about 2 ft. to about 10 ft.) should be undercut and should be replaced with engineered, compacted fill.

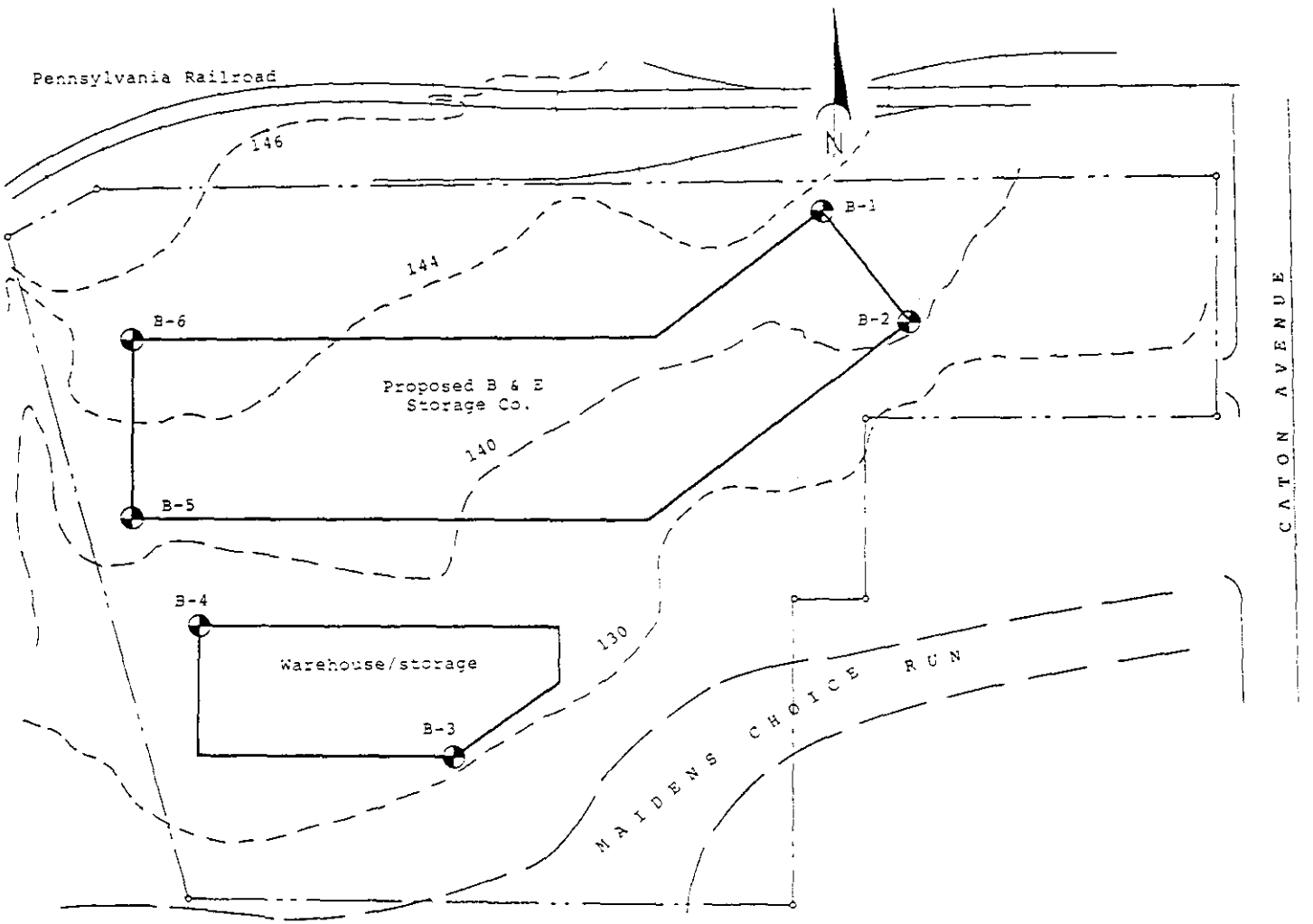
It should be noted that the existing fill has a very strong odor. This fill should be tested for the presence of hazardous waste. If it is found to contain hazardous material, it may have to be disposed off in a licensed hazardous waste landfill. Thus, depending upon the contents of the existing fill, disposal of the undercut soil could be very expensive.

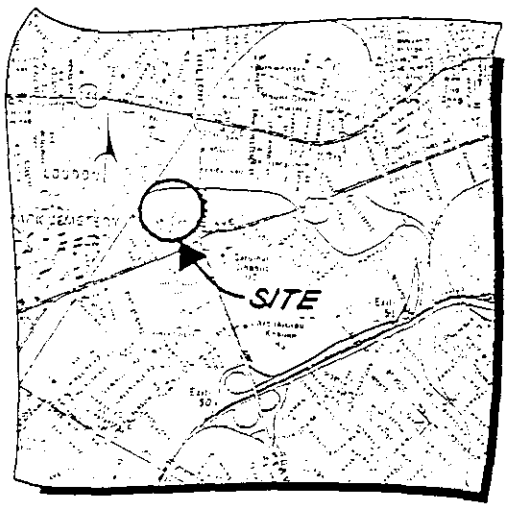
Building Foundation

The soil at shallow depths in the northern portion of the site are considered to be suitable for supporting light structures. The existing fill in the southern portion is considered to be unsuitable for supporting any building and should be replaced with engineered fill, as discussed previously. The building may be founded on shallow spread footings bearing on the virgin ground or on the compacted fill. An allowable bearing capacity of 2500 psf should be used to design the footings. All exterior footings should be founded at a minimum depth of 30 inches below exterior finished grade for frost protection.

Floor Slab

The floor slab should be designed as a slab-on-grade and should be isolated from the columns and walls to permit minor movements. A gravel/stone blanket, 6 inches thick, should be provided under the floor slab. A water proof PVC membrane should be installed between the concrete slab and the gravel/stone blanket. The slab may be designed using a coefficient of subgrade reaction of 120 T/cu. ft.





VICINITY MAP

700-708 CATON AVENUE

National Foundation Engineering, Inc.

TEST BORING LOCATION PLAN

FIGURE: 1	DRAWN BY: C.L.	CHECKED BY:
DATE: June 1989	JOB NO.: 89-1640	SCALE

ORIGINAL (Red)

National Foundation Engineering, Inc.

ORIGINAL (Red)

RECORD OF SOIL EXPLORATION

Contracted With: O'Brecht & Associates — Boring #: B-1
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER

Datum: — Hammer Wt. 140 Lbs. — Hole Diameter 7" — Foreman M. Kalandros
Surf. Elev. — Ft. — Hammer Drop 30 In. — Rock Core Dia. — Inspector
Date Started 6-8-89 — Pipe Size 1 3/8 In. — Boring Method HSA — Date Completed 6-8-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.0						%	No topsoil
	Red-brown silty sand	1.5			4 7-10	1	DS	0.5	Hole backfilled
	LOST	4.0			14 8-5	2	DS	0	Perched water @ 1.0'
	Red-brown sandy clay	6.5	5		6 11-7	3	DS	1.5	
	White and light brown silty sand, trace decomposed rock	10.0	10		8 13-13	4	DS	1.5	
	Light brown sandy silt		15		50/2	5	DS	1.2	
	Bottom of hole 15.0'		20						
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

ORIGINAL (Red)

RECORD OF SOIL EXPLORATION

Contracted With: O'Brecht & Associates — Boring #: B-2
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER

Datum: — Hammer Wt.: 140 Lbs. — Hole Diameter: 7" — Foreman: M. Kalandros
Surf. Elev.: Ft. — Hammer Drop: 30 In. — Rock Core Dia.: — Inspector:
Date Started: 6-8-89 — Pipe Size: 1 3/8 In. — Boring Method: HSA — Date Completed: 6-8-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.8						%	No topsoil
	Asphalt								Encountered water @ 13.8'
	Brown sandy clay trace gravel			I	6-9-9	1	DS	1.0	Hole backfilled
	Red/brown hard sandy clay		5	I	7 10-14	2	DS	1.5	Hole caved @ 14.6'
	Light brown clayey sandy silt			I	10 14-14	3	DS	1.5	
	Light brown sandy silt/ silty sand, trace decomposed rock		10		12 18-20	4	DS	1.5	
	Reddish brown sandy silt		15		50/2	5	DS	0.2	
	Bottom of hole 18.5'		20						
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.
AFTER 24 HRS. ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

ORIGINAL (Red)

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: O'Brecht & Associates — Boring #: B-3
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER
Datum: — Hammer Wt. 140 Lbs. — Hole Diameter 7" — Foreman M. Kalandros
Surf. Elev. — Ft. — Hammer Drop 30 In. — Rock Core Dia — Inspector
Date Started 6-8-89 — Pipe Size 1 3/8 In. — Boring Method HSA — Date Completed 6-8-89

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity, Size, Proportions)	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.0						%	
	Brown sandy clay brick Fill			D	4-3-3	1	DS	0.2	No topsoil No water encountered Hole backfilled
	White and black and brown sandy silt, trace paper Fill		5	I	1-1-1	2	DS	0.5	
				I	WOH	3	DS		
	LOST			L	-	4	DS	0	
	Bottom of hole 10.0'		10						
			15						
			20						
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

ORIGINAL (Red)

RECORD OF SOIL EXPLORATION

Contracted With: O'Brecht & Associates — Boring #: B-4
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER

Datum: — Hammer Wt. 140 Lbs. — Hole Diameter 7" — Foreman M. Kalandros
Surf. Elev. — Ft. — Hammer Drop 30 In. — Rock Core Dia. — Inspector
Date Started 6-8-89 — Pipe Size 1 3/8 In. — Boring Method HSA — Date Completed 6-8-89

ELEV.	SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size, Proportions	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC. %	BORING & SAMPLING NOTES
	SURFACE	0.8							No topsoil
	Light Brown sandy clay trace Gravel, Fill			I	7-5-4	1	DS	0.5	No water encountered
	Black/red clayey sand with brick fragments Fill			I	5-3-4	2	DS	0.7	Hole caved @ 16.9'
	Black/Brown sandy clay with gravel, trace cinders. Fill		5	D	2-3-3	3	DS	1.0	Hole backfilled
	Brown sandy clay with gravel			I	2-2-4	4	DS	0.2	
	Brown/Tan sandy silt		10	I	5-9-9	5	DS	1.5	
	Red-brown-tan sandy silt		15	D	50/4	6	DS	1.5	
	Bottom of hole 20.0'		20						
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

ORIGINAL (Red)

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

Contracted With: O'Brecht & Associates — Boring #: B-5
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER

Datum: — Hammer Wt. 140 Lbs. — Hole Diameter 7" — Foreman M. Kalandros
Surf. Elev. — Ft. — Hammer Drop 30 In. — Rock Core Dia — Inspector
Date Started 6-9-89 — Pipe Size 1 3/8 In. — Boring Method HSA — Date Completed 6-9-89

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity, Size, Proportions)	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE * Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.4						%	
	Brown sandy clay with large gravel, tr. wood			I	4 50/2	1	DS	0.8	Topsoil 0.4' No water encountered Hole caved @ 17.4' Hole backfilled
	Brown sandy clay, trace gravel -- Bad smell			I	2-3-4	2	DS	1.2	
	Moist brown sandy silt, trace gravel		5	I	1-1-1	3	DS	0.5	
	Brown sandy silt. Very strong odor			I	5-7-9	4	DS	1.0	
	Brown sandy silt		10						
	Tan silty sand, trace gravel		15	I	15 11-15	5	DS	1.2	
	Bottom of hole 20.0'		20	D	50/5	6	DS	0.5	
			25						
			30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS ____ FT.
AFTER 24 HRS ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

National Foundation Engineering, Inc.

RECORD OF SOIL EXPLORATION

ORIGINAL (Red)

Contracted With: O'Brecht & Associates — Boring #: B-6
Project Name: 700-708 S. Caton Avenue — Job #: 89-1640
Location: Baltimore, MD.

SAMPLER

Datum: — Hammer Wt.: 140 Lbs. — Hole Diameter: 7" — Foreman: M. Kalandros
Surf. Elev.: Ft. — Hammer Drop: 30 In. — Rock Core Dia: — Inspector:
Date Started: 6-9-89 — Pipe Size: 1 3/8 In. — Boring Method: HSA — Date Completed: 6-9-89

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity, Size, Proportions)	STRA. DEPTH	DEPTH SCALE	SAMPLE COND.	SAMPLE Blows/6"	SAMPLE NO.	SAMPLE TYPE	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE	0.5						%	Took auger cuttings for first sample
	6" asphalt, black top crusher run								5" asphalt & blacktop
	Red-Brown clayey silty sand			I	9 19-14	1	DS	1.0	No water encountered
	Red-brown clayey silt		5	I	5-4-5	2	DS	1.0	Hole caved @ 23.2'
	Light brown clayey sandy silt			I	7-7-9	3	DS	1.0	
	Tan-brown-white clayey sandy silt		10						
			15	I	8 16-31	4	DS	1.0	
			20	I	9 22-29	5	DS	1.0	
			25	I	50/5	6	DS	0.5	
	Bottom of hole 25.0'		30						

SAMPLE CONDITIONS
D — DISINTEGRATED
I — INTACT
U — UNDISTURBED
L — LOST

SAMPLER TYPE
DS — DRIVEN SPLIT SPOON
PT — PRESSED SHELBY TUBE
CA — CONTINUOUS FLIGHT AUGER
RC — ROCK CORE

GROUND WATER DEPTH
AT COMPLETION ____ FT.
AFTER ____ HRS. ____ FT.
AFTER 24 HRS. ____ FT.

BORING METHOD
HSA — Hollow Stem Augers
CFA — Continuous Flight Augers
DC — Driving Casing
MD — Mud Drilling

* STANDARD PENETRATION TEST—DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

(Red)

APPENDIX 3

ORIGINAL
(Red)

DEPARTMENT OF NATURAL RESOURCES
MARYLAND GEOLOGICAL SURVEY
2300 St. Paul Street
Baltimore, Maryland 21218-5210
Telefax 410/554-5502

To: Vas Rusu **Date:** August 3, 1993

From: Dona Appel

Subject: **Requested Well Permits**

Attached are the following well permits and completion reports which you requested:

AA 74-2531
AA 88-0314
BA 73-7723
BA 73-7832
BA 81-6209
BA 88-0160
BA 88-3520
BC 73-0010
BC 81-0827
GA 73-0994
HO 73-1295

Lithology not clear on original

There was nothing in the file for BC 73-0168.

EMERGENCY/TEMP NO. IF ANY

B 1 0919 SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER AA-88-0319
fill in this form completely

Date Received (APA) # 5000 0993 7875
05 24 88

OWNER INFORMATION
ULERTO MARY
Last Name Owner First Name
6962 RIDGE ROAD
Street or RFD
HANOVER MD 21076
Town State Zip

DRILLER INFORMATION
Robert F. Brucksch 411 8-
Driller's Name License No.
Branham Contractors, Inc.
Firm Name
8133 Hog Neck Road, Pasadena, Md. 21122
Address
Signature 5-9-88 Date

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.) 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 600

USE FOR WATER (CIRCLE APPROPRIATE BOX)
(D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
(F) FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
(I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
(P) PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
(T) TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 270 FEET

APPROXIMATE DIAMETER OF WELL 4" NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion (ROTARY) Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
(N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
(S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
(D) THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER GAP
FORCE [ ] WRITE INITIALS IN BOX PERMIT No. AA-88-0319

LOCATION OF WELL
ANNE ARUNDEL
8 COUNTY
NONE
23 SUBDIVISION
SECTION LOT # 6962
HANOVER
52 NEAREST TOWN
MILES FROM TOWN (enter 0 if in town) 0 M

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)
N, NE, E, SE, S, SW, W, NW, TOWN

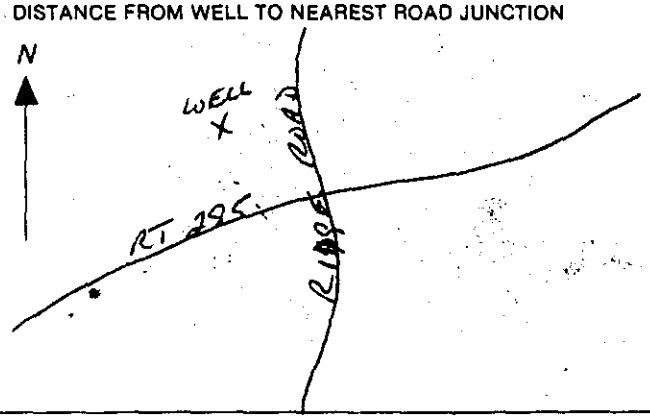
RIDGE ROAD
NEAR WHAT ROAD
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) WEST (W) EAST (E) SOUTH (S)
15
DISTANCE FROM ROAD
ENTER FT or MI FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL
A.A. 02
COUNTY NAME COUNTY NO.
STATE SIGNATURE INSERT S
DATE ISSUED 060288 Geeb
CO SIGNATURE EXP. DATE
NORTH GRID 518000 EAST GRID 0891000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1. PUBLIC WATER
2. ~~[illegible] #~~
3. T02001510
WRITE THE BOX NUMBER FROM THE MAP HERE
E 890
N 510
000 000

X WELL

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

1/1/1 90145

SURVEY

C 1 | 9863 | SEQUENCE NO. (DENV USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 02

DATE Received

DATE WELL COMPLETED 6/6/88

Depth of Well 180 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" AA-88-0314

OWNER A.A. CO. ☒ Community Development (last name, first name)

STREET OR RFD 6982 Ridge Road TOWN Hanover

SUBDIVISION None SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
red clay	0	15	
yellow sand	15	30	
red clay	30	55	
rock	55	58	
grey clay	58	63	
rock	63	65	
white clay	65	70	
rock	70	72	
RED clay	72	95	
fine yellow sand	95	105	
red clay	105	130	
coarse yellow white sand	130	160	X

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes [Y] no [N]

TYPE OF GROUTING MATERIAL

CEMENT [CM] BENTONITE CLAY [BC]

NO. OF BAGS 4 NO. OF POUNDS 200

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot)

from 4 ft. to 44 ft.

(enter 0 if from surface)

CASING RECORD
(casing types insert appropriate code below)

[ST] STEEL [CO] CONCRETE [PL] PLASTIC [OT] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	153

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to
1			
2			

SCREEN RECORD
(screen type or open hole insert appropriate code below)

[ST] STEEL [BR] BRASS BRONZE [HO] OPEN HOLE [PL] PLASTIC [OT] OTHER

C 2

EACH SCREEN	DEPTH (nearest ft.)	
1	PL 153	160
2		
3		

SLOT SIZE 1 0 2 20

DIAMETER OF SCREEN 4 (NEAREST INCH)

GRAVEL PACK from 150 to 160

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 3

PUMPING RATE (gal. per min. to nearest gal.) 35

METHOD USED TO MEASURE PUMPING RATE AIR

WATER LEVEL (distance from land surface)

BEFORE PUMPING 80

WHEN PUMPING 105

TYPE OF PUMP USED (for test)

[A] air [P] piston [T] turbine

[C] centrifugal [R] rotary [O] other (describe below)

[J] jet [S] submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: S

CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7

PUMP HORSE POWER .50

PUMP COLUMN LENGTH (nearest ft.) 120

CASING HEIGHT (circle appropriate box and enter casing height)

[+] above [-] below LAND SURFACE 1 (nearest foot)

CIRCLE APPROPRIATE LETTER

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 418

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

John Bishop

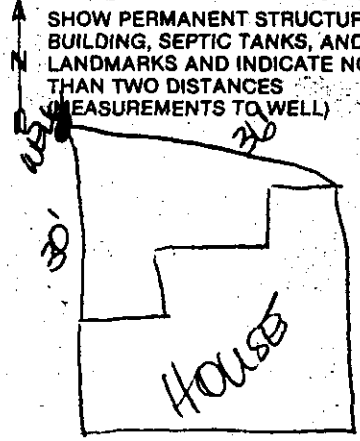
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W.Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



SURVEY

EMERGENCY/TEMP NO. IF ANY

B 1 | 5982 | SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-88-0160
fill in this form completely

ORIGINAL (Red)

Date Received (APA): 10 1 88

OWNER INFORMATION
OWINGS IV WALLY
Last Name | Owner | First Name
1800 COLONIAL ROAD
Street or RFD
BALTIMORE MD 21207
Town | State | Zip

DRILLER INFORMATION
Dana Kyker, Jr. II — 256
Driller's Name — License No.
Westminster Rotary Well Drilling, Inc.
Firm Name
P.O. Box #861, Westminster, Md. 21157
Address
Dana Kyker, Jr. II — 10/12/88
Signature — Date

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 5
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 550

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- (F) FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- (I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- (P) PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- (T) TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 150 FEET

APPROXIMATE DIAMETER OF WELL: 6" NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) — JETTED — Jetted & DRIVEN
AIR-ROTary — AIR-PERcussion — ROTARY (Hydraulic Rotary)
CABLE — REVerse-ROTary — DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- (S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- (D) THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER: GAP
FORCE: MF (WRITE INITIALS IN BOX) PERMIT No. 88-01160

SPECIAL CONDITIONS
W-597-8379 W-298-0476

LOCATION OF WELL
BALTIMORE
8 COUNTY
23 SUBDIVISION
SECTION — LOT
CATONSVILLE
52 NEAREST TOWN
MILES FROM TOWN (enter 0 if in town): 1.0 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NW 8–9, NE 8–9, W 8, TOWN, E 8, SW 8–9, S 8, SE 8–9

LEXINGTON ROAD
NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH (N), WEST (W), 32, EAST (E), SOUTH (S)

DISTANCE FROM ROAD: 75
ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

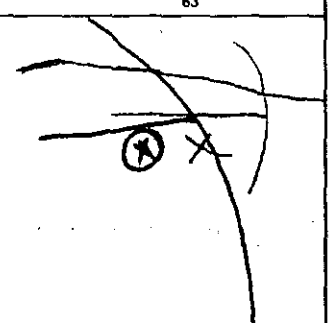
COUNTY NAME: Balto. — COUNTY NO.: 003
STATE SIGNATURE — INSERT S
DATE ISSUED: 10 1 88 — CO SIGNATURE — EXP. DATE

NORTH GRID: 5300000 — EAST GRID: 0875000

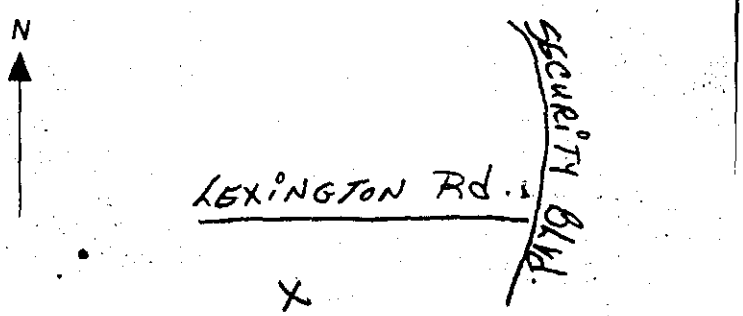
SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER
1. City
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE
E 870
N 530
000 000



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SURVEY

C 1 6130 (1 2 3 6) SEQUENCE NO. (DENV USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 003 ORIGINAL

DATE Received (8–13)

DATE WELL COMPLETED 12 16 88 (15–20)

Depth of Well (22–26) 303 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA-88-0160 (28–37)

OWNER Owings Wally (last name / first name)

STREET OR RFD 1800 Colonial Rd TOWN Bel Air, Md 21207

SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
Dirt	0	2	
Clay	2	14	
Mica & Clay	14	51	X
Brown Mica	51	75	
Blue Schist	75	100	
Brown Mica	100	101	X
Blue Schist	101	303	

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) no N (44)

TYPE OF GROUTING MATERIAL
CEMENT CM (45–46) BENTONITE CLAY BC (45–46)

NO. OF BAGS 22 NO. OF POUNDS 2068

GALLONS OF WATER 132

DEPTH OF GROUT SEAL (to nearest foot)
from 0 (48 TOP 52) ft. to 78 (54 BOTTOM 58) ft.
(enter 0 if from surface)

CASING RECORD
casing types — insert appropriate code below
ST STEEL (60–61) CO CONCRETE
PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
ST (60–61)	6 (63–64)	80 (66–70)

OTHER CASING (if used)

	diameter inch	depth (feet) from	to
1			
2			

SCREEN RECORD
screen type or open hole — insert appropriate code below
ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

C 2 (1–2)

	DEPTH (nearest ft.)	
1	HO (8–9) 80 (11–15)	303 (17–21)
2	(23–24)	(26–30) (32–36)
3	(38–39)	(41–45) (47–51)

SLOT SIZE 1 ____ 2 ____ 3 ____

DIAMETER OF SCREEN (56–60) (NEAREST INCH)

GRAVEL PACK from ____ to ____

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 (68)

C 3 (1–2)

PUMPING TEST
HOURS PUMPED (nearest hour) 6 (8–9)

PUMPING RATE (gal. per min. to nearest gal.) 3 (11–15)

METHOD USED TO MEASURE PUMPING RATE Flowmeter

WATER LEVEL (distance from land surface)

BEFORE PUMPING 51 (17–20)

WHEN PUMPING 101 (22–25)

TYPE OF PUMP USED (for test)
A air (27) P piston (27) T turbine (27)
C centrifugal (27) R rotary (27) O other (describe below) (27)
J jet (27) S submersible (27)

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS - EXCEPT HOME USE

TYPE OF PUMP INSTALLED
PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31–35)

PUMP HORSE POWER (37–41)

PUMP COLUMN LENGTH (nearest ft.) (43–47)

CASING HEIGHT (circle appropriate box and enter casing height)
+ above
− below (49)
LAND SURFACE
2 (nearest foot) (50–51)

CIRCLE APPROPRIATE LETTER
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

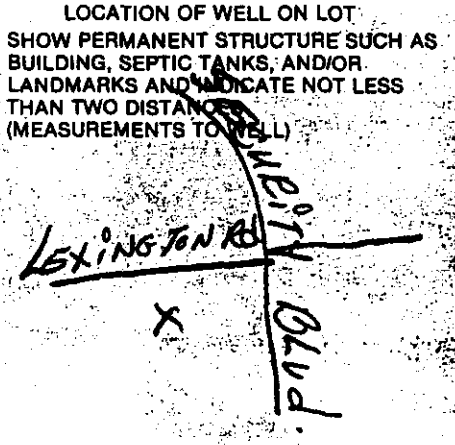
DRILLERS IDENT. NO. 256

Dana Kyker, Jr. II
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T (70) TELESCOPE CASING
(E.R.O.S.) (72) LOG INDICATOR
WQ (74–76) OTHER DATA

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



SURVEY

D-1

EMERGENCY/TEMP NO. IF ANY

B 1 | 8630 | SEQUENCE NO. (DP USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL

please print or type

STATE PERMIT NUMBER: BA-88-3520

fill in this form completely

Date Received (APA): 07/16/91

OWNER INFORMATION

Last Name: WHALEN | Owner: ANN B | First Name

Street or RFD: 6201 FOX HALL FARM RD

Town: CATONSVILLE | State: MD | Zip: 21228

DRILLER INFORMATION

Driller's Name: DANA KYLER JR II | License No.: 2556

Firm Name: Westminster Rotary Well Drilling

Address: P.O. BOX 861, Westminster MD 21157

Signature: [signature] | Date: 7/11/91

WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.): 6

AVERAGE DAILY QUANTITY NEEDED (GAL PER DAY): 5000

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- D — HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F — FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- I — INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- P — PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- T — TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 150 FEET

APPROXIMATE DIAMETER OF WELL: 6 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) | JETTED | Jetted & DRIVEN

AIR-ROTary | AIR-PERcussion | ROTARY (Hydraulic Rotary)

CABLE | REVerse-ROTary | DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS

(CIRCLE APPROPRIATE BOX)

- N — THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y — THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- S — THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D — THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER: GAP

FORCE: MF (WRITE INITIALS IN BOX) PERMIT No. BA-88-3520

B 3 — LOCATION OF WELL — ORIGINAL (Red)

COUNTY: BALTIMORE

SUBDIVISION: 6201 FOX HALL FARM RD

SECTION | LOT

NEAREST TOWN: CATONSVILLE

MILES FROM TOWN (enter 0 if in town): 1 M I

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NW 8-9, NE 8-9, W 8, E 8, SW 8-9, S 8, SE 8-9, TOWN

NEAR WHAT ROAD: FOX HALL FARM ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH, WEST, 32, EAST, SOUTH

DISTANCE FROM ROAD: 1.3

ENTER FT or MI: MI

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME: Baldo | COUNTY NO.: 003

STATE SIGNATURE | INSERT S

DATE ISSUED: 07/16/91 | CO SIGNATURE: M. Epps | EXP. DATE

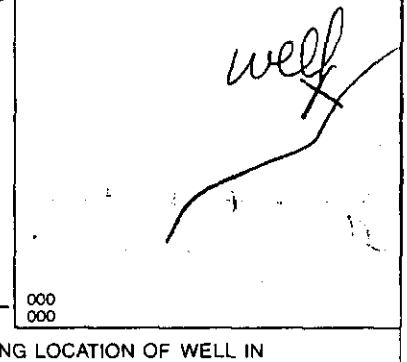
NORTH GRID: 51400 | EAST GRID: 85700

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

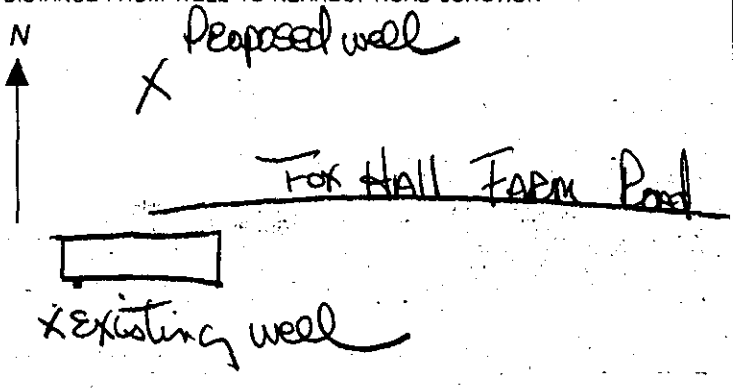
SOURCES OF DRILLING WATER

1. City
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE: E 870, N 510



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS: PHONE: ANN WHALEN - 788-6531

SURVEY

C 1 | 7776 | SEQUENCE NO. (DENY USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER: ORIGINAL (Re...)

ST/CO USE ONLY
DATE Received

DATE WELL COMPLETED: 09 10 91

Depth of Well: 220 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-88-3590

OWNER: Wheeler, A and B
STREET OR RFD: 6201 Fox Hall Farm Rd TOWN: Catonsville, Md.
SUBDIVISION: SECTION: LOT: 21228

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
Dirt	0	2	
Clay	2	7	
Blue & Granite	7	74	
Opening	74	75	X
Blue Schist	75	102	
Br. Schist	102	103	X
Blue Granite	103	220	

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 256

DANA KYKER JR. II
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

Dana Kyker Jr. II

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes Y | no N

TYPE OF GROUTING MATERIAL
CEMENT C M | BENTONITE CLAY B C

NO. OF BAGS 11 NO. OF POUNDS 1034
GALLONS OF WATER 66
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 43 ft.
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

S T STEEL | C O CONCRETE | P L PLASTIC | O T OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
S T	6	44

OTHER CASING (if used)

	diameter (inch)	depth (feet) from	to
ADDITIONAL CASING			

SCREEN RECORD
screen type or open hole insert appropriate code below

S T STEEL | B R BRASS BRONZE | H O OPEN HOLE | P L PLASTIC | O T OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	H O	44	220
2			
3			

SLOT SIZE 1 ____ 2 ____ 3 ____
DIAMETER OF SCREEN ____ (NEAREST INCH)
GRAVEL PACK from ____ to ____
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

OEP USE ONLY
(NOT TO BE FILLED IN BY DRILLER)
T | (E.R.O.S.) | W Q
TELESCOPE CASING | LOG INDICATOR | OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour): 3
PUMPING RATE (gal. per min. to nearest gal.): 6
METHOD USED TO MEASURE PUMPING RATE: flowmeter
WATER LEVEL (distance from land surface)
BEFORE PUMPING: 90
WHEN PUMPING: 220

TYPE OF PUMP USED (for test)
- A air
- P piston
- T turbine
- C centrifugal
- R rotary
- O other (describe below)
- J jet
- S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED
PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:
CAPACITY: GALLONS PER MINUTE (to nearest gallon)
PUMP HORSE POWER
PUMP COLUMN LENGTH (nearest ft.)
CASING HEIGHT (circle appropriate box and enter casing height)
+ above LAND SURFACE | − below
(nearest foot): 1

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

N

well x220 ft
Fox Hall Farm Road
x dwelling
x existing
1 Dry Well 27 ft. D 1

SURVEY

C 1 12864 — SEQUENCE NO. (WRA USE ONLY) — (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL IS COMPLETED

COUNTY NUMBER — ORIGINAL (Red)

Date Received (WRA use only)

DATE WELL COMPLETED: 5/5/81

Depth of Well: 256 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": AA-74-2531

OWNER: SACHS (last name) EDWARD (first name)

STREET OR RFD: 1500 Nursery Rd. TOWN: N. Linthicum, Md. 21090

SUBDIVISION: SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
Top soil & brown clay	0	7	
Sand & gravel layers of clay	7	35	
White clay	35	42	
Sand & clay	42	52	
Fine to coarse sand, thin layers clay	52	76	
Red clay	76	90	
Gray clay	90	101	
Clay, sand & thin layers rock	101	128	
Rock	128	131	
Clay, sand thin layers of rock	131	150	
Clay, traces sand & rock	150	162	
Clay	162	218	
Sand, sandrock	218	222	
Sand & clay	222	230	
White clay & sand	230	240	
Fine to medium coarse tan sand	240	256	X

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): YES (Y) NO (N)

TYPE OF GROUTING MATERIAL: CEMENT (CM) BENTONITE CLAY (BC)

NO. OF BAGS: 5 NO. OF POUNDS: 470

GALLONS OF WATER: 30

DEPTH OF GROUT SEAL (to nearest foot) from: 3 ft. (enter 0 if from surface) to (BOTTOM): 20 ft.

CASING RECORD
casing types — insert appropriate code below: ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top(main)casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	251

OTHER CASING (if used)

EACH CASING	TYPE	diameter inch	depth (feet) from	to
	ST	2	239	249

SCREEN RECORD
screen type or open hole — insert appropriate code below: ST STEEL, BR BRASS, BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2 (seq. no.)

EACH SCREEN	TYPE	DEPTH (nearest ft.) from	to
1	PL	249	256
2			
3			

SLOT SIZE: .030

DIAMETER OF SCREEN: 2 (NEAREST INCH)

GRAVEL PACK from: 247 to: 256

IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX: F

C 3 (seq no)

PUMPING TEST
HOURS PUMPED (nearest hour): 2

PUMPING RATE (gal. per min. to nearest gal.): 15

METHOD USED TO MEASURE PUMPING RATE: Bucket

WATER LEVEL (distance from land surface)

BEFORE PUMPING: 151

WHEN PUMPING: 180

TYPE OF PUMP USED (for test)

(A) air, (P) piston, (T) turbine, (C) centrifugal, (R) rotary, (O) other (describe below), (J) jet, (S) submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O)

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): (+) above LAND SURFACE, (−) below: 1 (nearest foot)

CIRCLE APPROPRIATE BOX
(A) A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

(E) ELECTRIC LOG OBTAINED

(P) TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS IDENT. NO.: 56

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION):

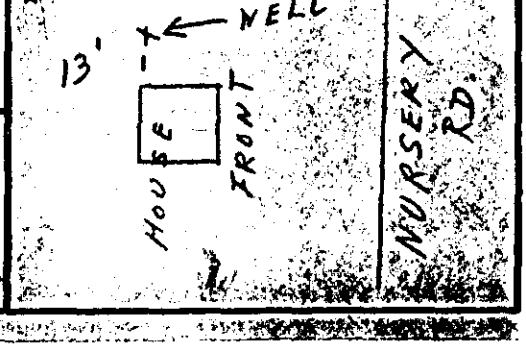
SITE SUPERVISOR (sign of driller or journeyman responsible for sitework if different from permittee):

WRA USE ONLY
(NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.)

TELESCOPE CASING: — LOG INDICATOR: — OTHER DATA: WQ

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



SURVEY

EMERGENCY/TEMP NO. IF ANY

B 1 2 6350 SEQUENCE NO. (OEP USE ONLY)
1 2 3 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

OEP PERMIT NUMBER
BC-81-0827
70 79
fill in this form completely

Date Received
8 13

OWNER INFORMATION

CONSOLIDATED FREIGHT
15 Last Name Owner First Name 34

3663 BENSON AVE
36 Street or RFD 55

BALTIMORE MD 21227
57 Town 70 State 72 Zip 76

DRILLER INFORMATION

BRUCE H. SCHLAICH 333
Driller's Name 77 License No. 80

THE ROBERT E. CULTER COMPANY
Firm Name

1E MUSIC FAIR RD. OWINGS MILLS MD 21117
Address

Bruce H. Schlaich 7/16/87
Signature Date

B 2 1 2
WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) 1
8 12

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 1
14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)

D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
22 I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
T TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 40 FEET
24 28

APPROXIMATE DIAMETER OF WELL 4" NEAREST INCH

METHOD OF DRILLING (circle one)

30 BORED (or Augered) JETTED Jetted & DRIVEN
37 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL
Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
39 S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL

BC 683
0010

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE) 41 52

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER - GAP
54 63

FORCE 67 68 WRITE INITIALS IN BOX PERMIT No. BC-81-0827
70 71 72 73 74 75 76 77 78 79

B 3 1 2
LOCATION OF WELL

ORIGINAL (Red)

8 ~~COUNTY~~ BALTIMORE CITY 21

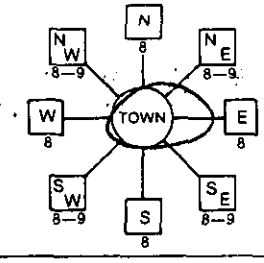
23 SUBDIVISION 42

SECTION 44 46 LOT 48 50

52 NEAREST TOWN VILLETVILLE 71

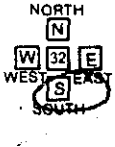
MILES FROM TOWN (enter 0 if in town) 0 MI
73 76 77 78

B 4 1 2
DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



BENSON AVE
11 NEAR WHAT ROAD 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)



34 1744 37
DISTANCE FROM ROAD

ENTER FT or MI FT
38 39

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

Balt City F/30
COUNTY NAME COUNTY NO.

OEP SIGNATURE STATE HEALTH INSERT S

DATE ISSUED 07 22 87
43 48

D. Raphel 1/22/88
CO SIGNATURE EXP. DATE
51

NORTH GRID 5200
50 55

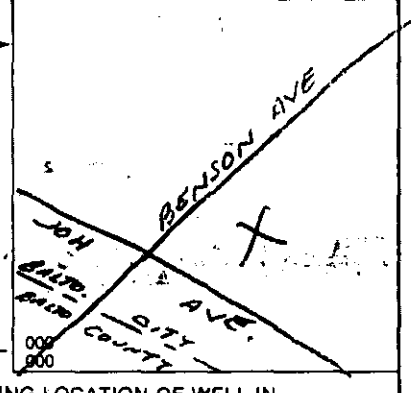
EAST GRID 0800
57 63

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

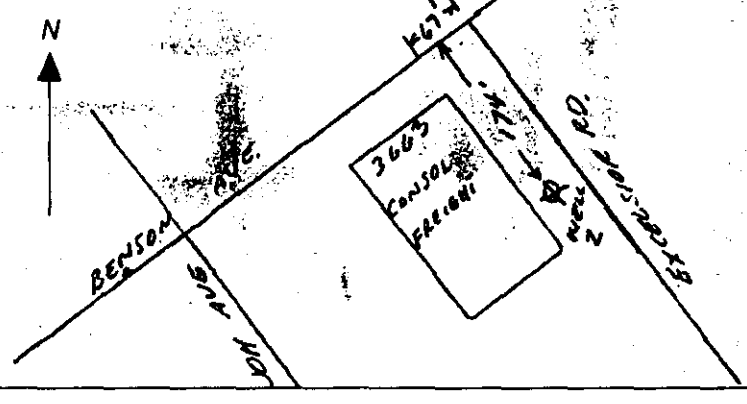
SOURCES OF DRILLING WATER
1. CITY SUPPLY
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 890
N 520



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

SURVEY

EMERGENCY / TEMP NO. IF ANY.

B 1 | 8849 | SEQUENCE NO. WRA USE ONLY
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please print or type

WRA PERMIT NUMBER
BA73-7832 ORIGINAL
fill in this form completely

DATE RECEIVED _____
8 (WRA USE ONLY) 13

OWNER INFORMATION

CHELLIS — JAMES
LAST NAME — OWNER — FIRST NAME

1534 TAYLOR AVE.
STREET OR RFD

BALT, Md 21240
TOWN — STATE — ZIP

B 1 CONTINUED — DRILLER INFORMATION

Earl Jones — 9
DRILLER'S NAME — LICENSE NO.

Earl Jones — Nov 80
SIGNATURE — DATE

B 2 — WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN) 5

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 400

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- [F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- [I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- [P] PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- [T] TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 200 FEET

APPROXIMATE DIAMETER OF WELL 6 NEAREST INCH

Method of Drilling (circle one)

BORED (OR AUGERED) — JETTED — JETTED & DRIVEN
AIR ROTARY — AIR PERCUSSION — ROTARY (HYDRAULIC) — ROTARY
CABLE — REVERSE ROTARY — DRIVE POINT
other _____

REPLACEMENT OR DEEPENED WELLS (Circle Appropriate Box)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- [Y] THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) _____

Not to be filled in by driller (WRA USE ONLY)

APPROP. PERMIT NUMBER _____ GAP _____

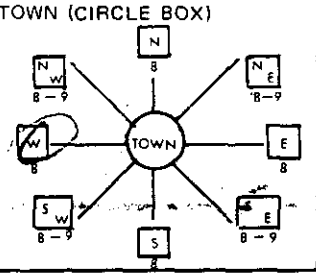
FORCE _____ WRITE INITIAL IN BOX _____ CONDITIONS _____
(A)(E) N S G W Q C L U

B 3 — LOCATION OF WELL

COUNTY BALTIMORE
SUBDIVISION WORTHINGTON VALLEY ESTATES
SECTION III — LOT 17
NEAREST TOWN COCKEYSVILLE
MILES FROM TOWN (enter 0 if in town) 4 MI

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



CHELLIS LT.
NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) WEST (W) 32 EAST (E) SOUTH (S)

50 FT
DISTANCE FROM ROAD (CIRCLE APPROPRIATE BOX) MI

SHOW LOCATION OF WELL WITH AN "X" IN THIS BOX →

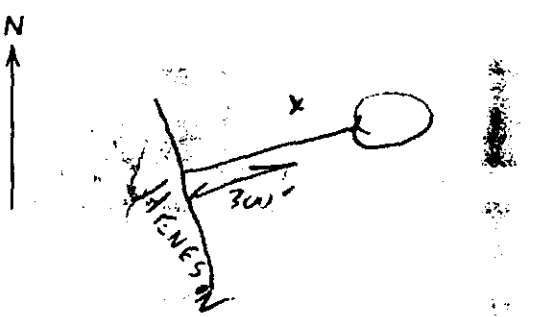
X

WRITE THE BOX NUMBER FROM THE MAP HERE

E 870
N 590

000/000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



B 4 — NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

BALTIMORE Co — 003
COUNTY NAME — COUNTY NO.

EHA SIGNATURE _____ STATE HEALTH CIRCLE BOX [S]

MO 12 DAY 03 YR 80 — CO SIGNATURE _____ DATE

NORTH GRID _____ EAST GRID _____ ELEV. (FT.) _____

B 5 — SPECIAL CONDITIONS (WRA USE ONLY)

NEW BALTIMORE COUNTY
YIELD TEST REQUIRED.

SURVEY

C 1 | 3384 | SEQUENCE NO. (WRA USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL IS COMPLETED

COUNTY NUMBER

ORIGINAL (Red)

Date Received (WRA use only)

DATE WELL COMPLETED: 12 Dec 80

Depth of Well: 150 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-73-7832

OWNER: CHELLIS (last name) JAMES (first name)

STREET OR RFD: 1534 Taylor Avenue TOWN: Baltimore, Maryland 21234

SUBDIVISION: WORTHINGTON VALLEY ESTATES SECTION: III LOT: 17

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
Brown dirt	0	8	
soft brown rock	8	61	
Hard gray rock flint streaks	61	66	
gray rock	66	150	

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) YES Y / NO N

TYPE OF GROUTING MATERIAL

CEMENT CM BENTONITE CLAY BC

NO. OF BAGS 14 NO. OF POUNDS 1400

GALLONS OF WATER 84

DEPTH OF GROUT SEAL (to nearest foot)

from TOP 0 ft. to BOTTOM 64 ft.

(enter 0 if from surface)

CASING RECORD
casing types: insert appropriate code below

MAIN CASING TYPE: ST (STEEL, CO CONCRETE, PL PLASTIC, OT OTHER)

Nominal diameter top(main)casing (nearest inch): 6

Total depth of main casing (nearest foot): 65

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole: insert appropriate code below

ST STEEL, BR BRASS, BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2 (seq. no.)

EACH SCREEN		DEPTH (nearest ft.)	
1	HO	64	150
2			
3			

SLOT SIZE 1 ____ 2 ____ 3 ____

DIAMETER OF SCREEN ____ (NEAREST INCH)

GRAVEL PACK from ____ to ____

IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX F

C 3 (seq no)

PUMPING TEST
HOURS PUMPED (nearest hour): 3

PUMPING RATE (gal. per min. to nearest gal.): 20

METHOD USED TO MEASURE PUMPING RATE: TIMER

WATER LEVEL (distance from land surface)

BEFORE PUMPING: 46

WHEN PUMPING: 49

TYPE OF PUMP USED (for test)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES Y / NO N

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE): (A, C, J, P, R, S, T, O)

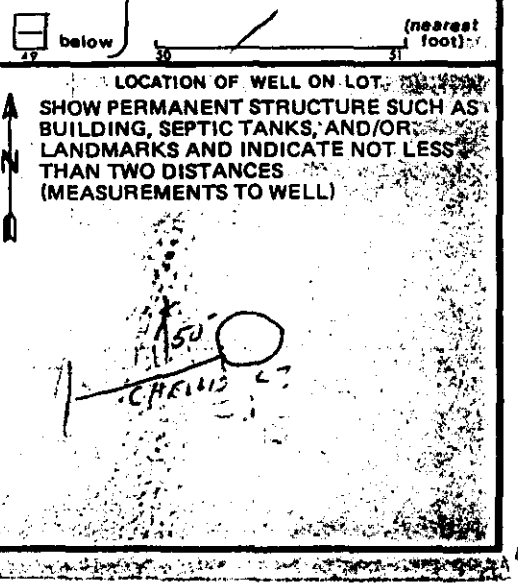
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft)

CASING HEIGHT (circle appropriate box and enter casing height): above / below LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



CIRCLE APPROPRIATE BOX
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS IDENT. NO. 9

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign of driller or journeyman responsible for sitework if different from permittee)

WRA USE ONLY
(NOT TO BE FILLED IN BY DRILLER)

T ____ (E.R.O.S.) W Q

TELESCOPE CASING ____ LOG INDICATOR ____ OTHER DATA ____

SURVEY

DNR-131 (7/73) EMERGENCY NO. (If any)

B 1 6181 SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER GA-73-0994
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)

0994 ORIGINAL (Red)

OWNER Best Kay J. (COL 15 LAST NAME / FIRST NAME / COL. 34)
STREET OR RFD 4307 Newark Rd V (COL 36 / COL. 55)
POST OFFICE Colman Manor Md 20722 (COL 57 / COL. 76)
6-13

B 1 CONTINUED (SEQ. NO.)

DRILLER INFORMATION

DATE 8-15-25 LICENSE NUMBER 37 (77 / 80)
John K Greenman (FIRST NAME / DRILLER / LAST NAME)
SIGNATURE John K Greenman

B 2 (SEQ. NO.)

WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 4 (8 / 12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 300 (14 / 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
T TEST
22

APPROXIMATE DEPTH OF WELL 150 (24 / 28) FEET
APPROXIMATE DIAMETER OF WELL 6 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED) JETTED DRIVEN
29-37 AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)
CABLE REVERSE-ROTARY DRIVE-POINT
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL
Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
39
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)
(41 / 52)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER (53 / 54) *ENGINEER REVIEW DISTRICT NO. (65 / 66)
FORCE (67 / 68) WRITE INITIALS IN BOX
CONDITIONS (70 / 71 / 72 / 73 / 74 / 75 / 76 / 77 / 78 / 79)
A E N S G W Q C L U

B 4 CONTINUED (SEQ. NO.)

HEALTH DEPARTMENT APPROVAL

41 S STATE HEALTH (CIRCLE BOX)
DATE MO. 08 DAY 19 YR. 75 (43 / 48)
Garrett 154 COUNTY NAME / COUNTY NO.
Elgin Harvey APPROVED BY

B 3 (SEQ. NO.)

LOCATION OF WELL

COUNTY Prince Georges (8 / 21) (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION (23 / 42)
SECTION (44 / 46) LOT (48 / 50)
NEAREST TOWN Red House (52 / 71)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 3 (73 / 76) M I 78

B 4 (SEQ. NO.)

DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

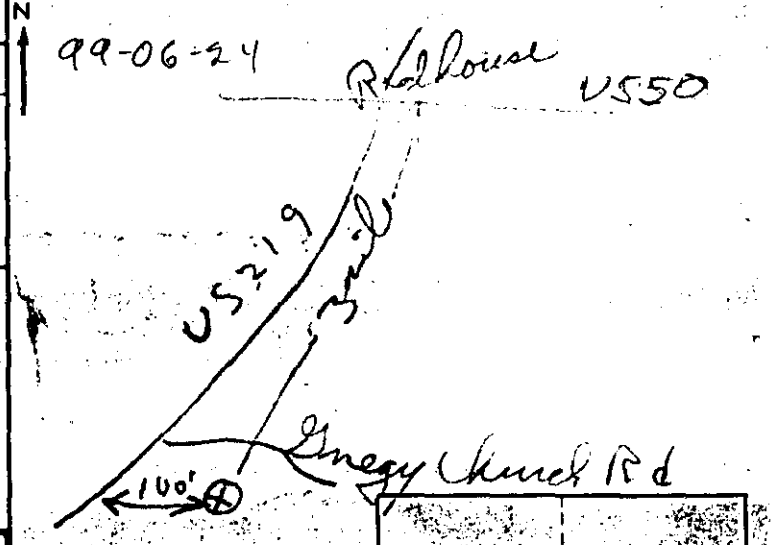
N NORTH E EAST NE NORTHEAST SE SOUTHEAST
S SOUTH W WEST NW NORTHWEST SW SOUTHWEST
(8 / 8 / 8 9 / 8 9)

NEAR WHAT ROAD US 219 (11 / 30)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH N (32) SOUTH S (32) EAST E (32) WEST W (32)

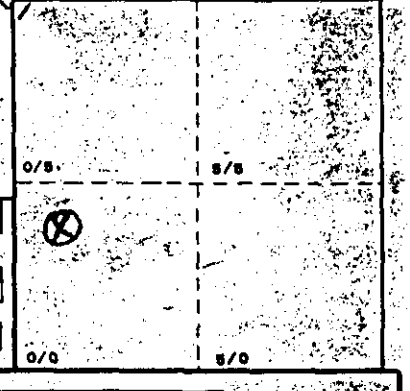
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 100 (34 / 37) F T M I 38 39

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 90 N 530

NORTH COORDINATE (50 / 51 / 52 / 53 / 54 / 55)
EAST COORDINATE (57 / 58 / 59 / 60 / 61 / 62 / 63)
ELEVATION AT WELL HEAD (FEET) (65 / 66 / 67 / 68)



B 5 (SEQ. NO.) SPECIAL CONDITIONS 6-69 (WRA USE ONLY)

SURVEY

DNR 214 9/71

C T H 7271 — SEQUENCE NO. (WRA USE ONLY)

1 2 3 (SEQ. NO.) 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

COUNTY NUMBER

DATE RECEIVED (WRA USE ONLY)

DATE WELL COMPLETED: 11-29-75

DEPTH OF WELL: 180 (TO NEAREST FOOT) (22 26)

PERMIT NO. FROM "PERMIT TO DRILL WELL": GA-79-0996 ORIGINAL (26 29 30 31 32 33 34 35 36 37)

DRILLERS IDENTIFICATION NO.: 37 (Red) (8-13, 15 20)

OWNER: Best Ray

STREET OR RFD: 4307 Menard Rd. POST OFFICE: Colmar Manor Md 20722

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Surface	0	4	
brown shale	4	19	
grayshale	19	31	
gray rock	31	88	
grayshale	88	180	✓

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) NO (N) (44 44)

TYPE OF GROUTING MATERIAL (CIRCLE BOX): CEMENT (C M) (45 46) BENTONITE CLAY (B C) (45 46)

NO. OF BAGS: 8 NO. OF POUNDS: 800

GALLONS OF WATER: 40

DEPTH OF GROUT SEAL (TO NEAREST FOOT): FROM 0 FT. TO 44 FT. (48 52 54 58) (ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T) CONCRETE (C O) PLASTIC (P L) OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
S T (60 61)	6 (63 64)	45 (66 70)

OTHER CASING (IF USED)

EACH CASING

DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T) BRASS OR BRONZE (B R) OPEN HOLE (H O) PLASTIC (P L) OTHER (O T)

C 2 (1 2 3 (SEQ. NO.) 6)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN

		FROM	TO
1	H O (8 9)	44 (11 15)	180 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1. 2. 3.

DIAMETER OF SCREEN (56 60) (NEAREST INCH)

GRAVEL PACK FROM TO

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: F (68)

WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER): (E.R.O.S.) (70) (72) W Q (74 75 76)

TELESCOPE CASING? LOG INDICATOR OTHER DATA AVAILABLE

CIRCLE APPROPRIATE BOXES

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLER (PLEASE PRINT): John Brennerman

SIGNATURE: John Brennerman

C 3 (1 2 3 (SEQ. NO.) 6)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR): 1 (8 9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 3 (11 15)

METHOD USED TO MEASURE PUMPING RATE: weir

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 26 (NEAREST FOOT) (17 20)

WHEN PUMPING: 180 (NEAREST FOOT) (22 25)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX) (FOR PUMPING TEST)

A AI (27) AIR PISTON (P) TURBINE (T)

CENTRIFUGAL (C) ROTARY (R) OTHER (DESCRIBE BELOW) (O)

JET (J) SUBMERSIBLE (S)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: A, C, J, P, R, S, T, O) (29)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (NEAREST FOOT) (43 47)

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

+ ABOVE / − BELOW LAND SURFACE (NEAREST FOOT) (49 50 51)

LOCATION OF WELL ON LOT

N

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).

SURVEY

DNR-131 (7/73)

EMERGENCY NO. (If any) –

B 1 1938 — SEQUENCE NO. (WRA USE ONLY) — (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER: HO-73-1285

FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)

OWNER: Milburn, Arthur E. (Red) — COL 15 LAST NAME — FIRST NAME — COL. 34

STREET OR RFD: 2113 Chelsea Terrace — COL 36 — COL. 56

POST OFFICE: Baltimore, Maryland 21216 — COL 57 — COL. 76

6-13

B 1 CONTINUED — DRILLER INFORMATION

DATE: December 22, 1975 — LICENSE NUMBER: 256 (77–80)

Dana — FIRST NAME — Kyker, Jr. — DRILLER — LAST NAME

SIGNATURE: [signature]

B 2 — WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE): 5 (8–12)

AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY): 450 (14–20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- (F) FARMING, AGRICULTURE, IRRIGATION
- (I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
- (M) MUNICIPAL WATER SUPPLY
- (P) PRIVATE WATER COMPANY
- } MUST HAVE STATE HEALTH DEPT. APPROVAL
- (T) TEST

22

APPROXIMATE DEPTH OF WELL: 175' (24–28) FEET

APPROXIMATE DIAMETER OF WELL: 6" (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED)	JETTED	DRIVEN
30-31 AIR-ROTARY	AIR-PERCUSSION	ROTARY (HYDRAULIC ROTARY)
CABLE	REVERSE-ROTARY	DRIVE-POINT

OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- (S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- (D) THIS WELL WILL DEEPEN AN EXISTING WELL

39

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) (41–52)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER (54–63) — ENGINEER REVIEW DISTRICT NO. (65)

FORCE (67–68) — WRITE INITIALS IN BOX — CONDITIONS (70–79): A E N S G W Q C L U

B 4 CONTINUED — HEALTH DEPARTMENT APPROVAL

41 (S) STATE HEALTH (CIRCLE BOX)

Howard — COUNTY NAME — W22650 — COUNTY NO.

DATE (MO. DAY YR.): 12 24 75 (43–48)

APPROVED BY: Donald W. Monaghan, Sanitarian

B 3 — LOCATION OF WELL

COUNTY: Howard (DO NOT ABBREVIATE COUNTY NAME) (8–21)

SUBDIVISION: "Kingston" (23–42)

SECTION: 2 (44–46) LOT: 4 (48–50)

NEAREST TOWN: Glenela (52–72)

MILES FROM TOWN (ENTER 0 IF IN TOWN): 3½ (73–76) (M) (I) (77–78)

B 4 — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

(N) NORTH — (E) EAST — (NE) NORTHEAST — (SE) SOUTHEAST

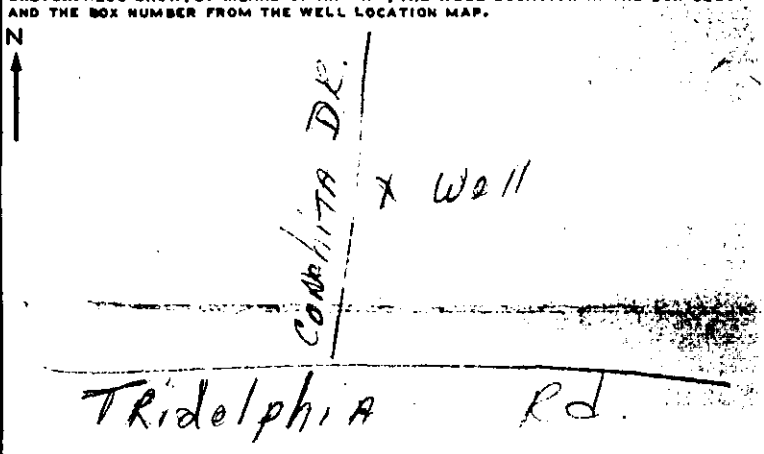
(S) SOUTH — (W) WEST — (NW) NORTHWEST — (SW) SOUTHWEST

NEAR WHAT ROAD: Conchita Drive (11–30)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH (N) SOUTH (S) EAST (E) WEST (W) (32)

DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX): 35 (34–37) (F) (T) (M) (38–39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW; AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.

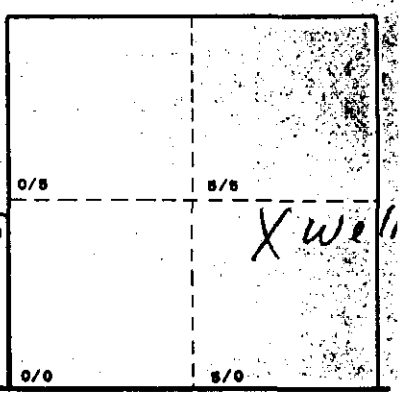


BOX NUMBER: E 800 / N 520

NORTH COORDINATE: 5 40000 (50–55)

EAST COORDINATE: 08 35 700 (57–63)

ELEVATION AT WELL HEAD (FEET): (65–68)



B 5 — SPECIAL CONDITIONS 8-69 (WRA USE ONLY)

3rd District

SURVEY

DNR 214 9/71

C 1 1528 — SEQUENCE NO. (WRA USE ONLY) — (SEQ. NO.) — (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

COUNTY NUMBER W22650 ORIGINAL (Red)

DATE RECEIVED (WRA USE ONLY)

DATE WELL COMPLETED: January 23, 1976 — 01 23 76

DEPTH OF WELL: 248 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": HO-73-1295

DRILLERS IDENTIFICATION NO. 30

OWNER: Milburn, (LAST NAME) Arthur E. (FIRST NAME)

STREET OR RFD: 2113 Chelsea Terrace POST OFFICE: Baltimore, Maryland 21216

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Dirt	0	8	
Soft Brn. & Blue Mica	8	18	
Hard Blue Mica	18	40	
Hard Brn. Mica	40	45	
Hard Blk. Mica	45	128	
Hard Brn. Sand-Stone	128	130	X
Hard Blue Mica	130	135	
Hard Blk. Sand-Stone	135	141	X
Hard Blk. Mica	141	208	
Hard Blk. Sand-Stone	208	230	
Hard Blk. Mica	230	248	

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

TYPE OF GROUTING MATERIAL (CIRCLE BOX): CEMENT (C M) BENTONITE CLAY (B C)

NO. OF BAGS 6 NO. OF POUNDS 364

GALLONS OF WATER 36

DEPTH OF GROUT SEAL (TO NEAREST FOOT): FROM 0 FT. TO 23 FT. (ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T) CONCRETE (C O) PLASTIC (P L) OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
S T	6	25

OTHER CASING (IF USED)

EACH CASING	DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T) BRASS OR BRONZE (B R) OPEN HOLE (H O) PLASTIC (P L) OTHER (O T)

C 2 (SEQ. NO.)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN		FROM	TO
1	HO	25	248
2			
3			

SLOT SIZE 1. ____ 2. ____ 3. ____

DIAMETER OF SCREEN 6 (NEAREST INCH)

GRAVEL PACK: FROM ____ TO ____

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: F

CIRCLE APPROPRIATE BOXES

A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E — ELECTRIC LOG OBTAINED

P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME (PLEASE PRINT): Dana Kyker

SIGNATURE: Dana Kyker

WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER): TELESCOPE CASING; LOG INDICATOR (E.W.D.S.); OTHER DATA AVAILABLE

C 3 (SEQ. NO.)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR): 6

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 3½

METHOD USED TO MEASURE PUMPING RATE: Flowmeter

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 130 (NEAREST FOOT)

WHEN PUMPING: 141 (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX) (FOR PUMPING TEST): AIR (A) PISTON (P) TURBINE (T) CENTRIFUGAL (C) ROTARY (R) OTHER (DESCRIBE BELOW) (O) JET (J) SUBMERSIBLE (S)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON)

PUMP HORSE POWER

PUMP COLUMN LENGTH (NEAREST FOOT)

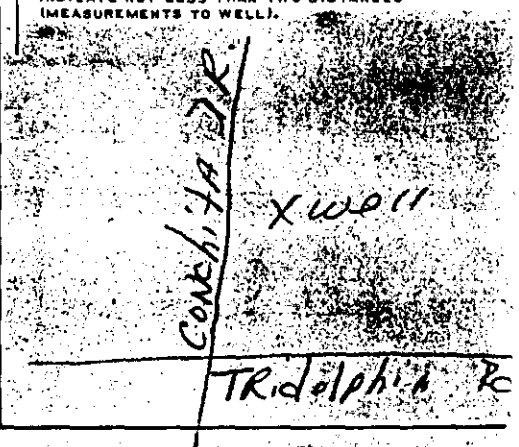
CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

(+) ABOVE (-) BELOW LAND SURFACE: 2 (NEAREST FOOT)

LOCATION OF WELL ON LOT

N

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



SURVEY

DNR-131 (7-77) EMERGENCY NO. (If any) –

B 1 7634 SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER AA-74-2531 (Rev)
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)

OWNER SACHS (COL 15 LAST NAME) EDWARD (FIRST NAME, COL. 34)
STREET OR RFD 1500 NURSERY RD. (COL 36, COL. 55)
POST OFFICE N. LINTHICUM, MD. 21090 (COL 57, COL. 76)
S-13

B 1 CONTINUED (1 2 3 SEQ. NO. 6)

DRILLER INFORMATION

DATE 11/4/80 LICENSE NUMBER 55 (77–80)
U. U. BUNKER & SONS INC. (FIRST NAME DRILLER LAST NAME)
SIGNATURE D. U. Bunker

B 2 (1 2 3 SEQ. NO. 6)

WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 10 (8–12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 500 (14–20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

22
- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- [F] FARMING, AGRICULTURE, IRRIGATION
- [I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
- [M] MUNICIPAL WATER SUPPLY
- [P] PRIVATE WATER COMPANY } MUST HAVE STATE HEALTH DEPT. APPROVAL
- [T] TEST

APPROXIMATE DEPTH OF WELL 200 (24–28) FEET
APPROXIMATE DIAMETER OF WELL 4 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED)	JETTED	DRIVEN
30-37 AIR-ROTARY	AIR-PERCUSSION	(ROTARY) (HYDRAULIC ROTARY)
CABLE	REVERSE-ROTARY	DRIVE-POINT

OTHER (DESCRIBE) _____

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

39
- [N] THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL
  PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)
  (41–62)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER (6 A P) (54–63) ENGINEER REVIEW DISTRICT NO. (65)
FORCE (67 68) WRITE INITIALS IN BOX
CONDITIONS (A E N S G W Q C L U) (70 71 72 73 74 75 76 77 78 79)

B 4 CONTINUED (1 2 3 SEQ. NO. 6)

HEALTH DEPARTMENT APPROVAL

41 [S] STATE HEALTH (CIRCLE BOX)
Anne Arundel (COUNTY NAME) 02 (COUNTY NO.)
DATE MO. 11 DAY 06 YR. 80 (43–48)
APPROVED BY

B 5 (1 2 3 SEQ. NO. 6)

SPECIAL CONDITIONS 8-63 (WRA USE ONLY)

B 3 (1 2 3 SEQ. NO. 6)

LOCATION OF WELL

COUNTY ANNE ARUNDEL (3–21) (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION (23–42)
SECTION (44–46) LOT (48–50)
NEAREST TOWN ELKRIDGE (52–71)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 1 (73) (M I) (76 77 78)

B 4 (1 2 3 SEQ. NO. 6)

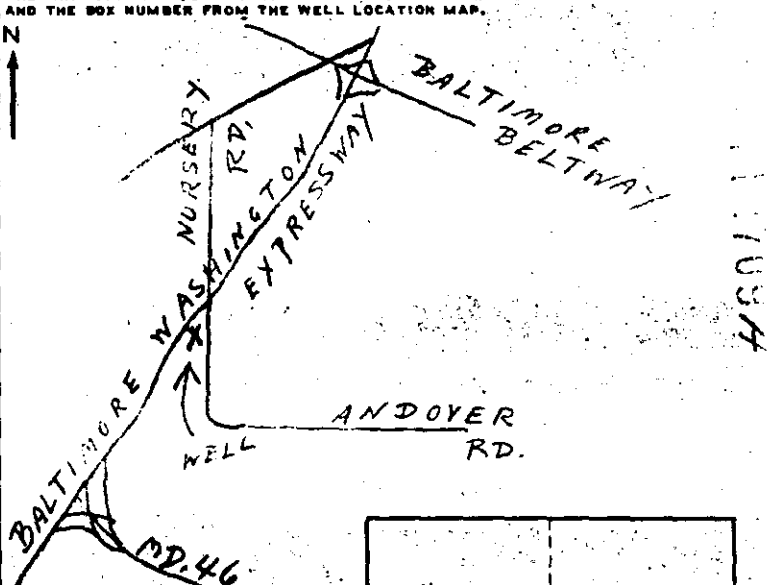
DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

[N] NORTH	[E] EAST	[N E] NORTHEAST	(S E) SOUTHEAST
[S] SOUTH	[W] WEST	[N W] NORTHWEST	[S W] SOUTHWEST

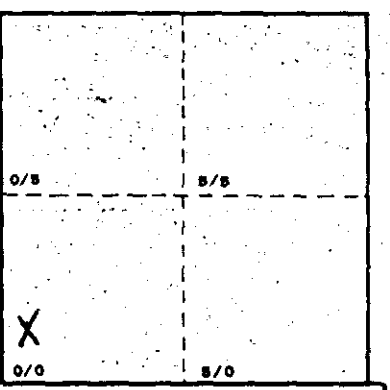
(8) (8) (8 9) (8 9)

NEAR WHAT ROAD NURSERY RD. (11–30)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) (32) SOUTH (S) (32) EAST (E) (32) WEST (W) (32)
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 300 (34–37) (F T) (M I) (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW; AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 890 N 500



NORTH COORDINATE 500000 (50–55)
EAST COORDINATE 0690000 (57–63)
ELEVATION AT WELL HEAD (FEET) (65–68)

SURVEY

C1 8911 — SEQUENCE NO. (OEP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER — ORIGINAL (Red)

DATE Received

DATE WELL COMPLETED: 06 08 87

Depth of Well: 40 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-81-8209

OWNER: B Green + Co Inc

STREET OR RFD: 3601 last name Washington Blvd first name — TOWN: Balto 21227

SUBDIVISION — SECTION — LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
attached			

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): (Y) N
TYPE OF GROUTING MATERIAL
CEMENT CM — BENTONITE CLAY BC
NO. OF BAGS 1 — NO. OF POUNDS 20
GALLONS OF WATER 20
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. TOP to 20 ft. BOTTOM
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below:
ST STEEL — CO CONCRETE — PL PLASTIC — OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	20

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	depth (feet) to
1			
2			

SCREEN RECORD
screen type or open hole insert appropriate code below:
ST STEEL — BR BRASS BRONZE — HO OPEN HOLE — PL PLASTIC — OT OTHER

C2

EACH SCREEN	DEPTH (nearest ft.)	
1	PL 20	40
2		
3		

SLOT SIZE 1 .020 2 3

DIAMETER OF SCREEN 4 (NEAREST INCH)

GRAVEL PACK from 20 to 40

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C3 — no pump

PUMPING TEST
HOURS PUMPED (nearest hour)
PUMPING RATE (gal. per min. to nearest gal.)
METHOD USED TO MEASURE PUMPING RATE
WATER LEVEL (distance from land surface)
BEFORE PUMPING
WHEN PUMPING
TYPE OF PUMP USED (for test)
A air — P piston — T turbine — C centrifugal — R rotary — O other (describe below) — J jet — S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES (NO)
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:
CAPACITY: GALLONS PER MINUTE (to nearest gallon)
PUMP HORSE POWER
PUMP COLUMN LENGTH (nearest ft.)
CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE 0 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)
N
attached

CIRCLE APPROPRIATE LETTER
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 346
Anthony R. D'Amiano
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T — (E.R.O.S.) — WQ
TELESCOPE CASING — LOG INDICATOR — OTHER DATA

SURVEY

4/18

Handex®

ORIGINAL
(Red)

HANDEX CORP., 360 Morgan Road, P.O. Box 522, Odenton, Maryland 21113 (301) 674-3100

BORING LOG

Well No. 5 Application No. _____ Permit No. BA-81-6209
Date Drilled 1-8-1987 County _____ Use monitor
Location 3601 Washington Blvd., Baltimore, Md.
Owner B. Green & Co., Inc. Address same as above
Drilling Method Air Rotary Sampling Method from cuttings
Hole Diameter 6 7/8" Total Depth 40'

Casing:
Type PVC Diameter 4" Length 20'

Screen:
Type PVC Slot .020 Diameter 4" Length 20'
Gravel Pack Size #1 Morie Casing Seal Bentonite
Static Water Level _____ Geologic Formation _____

DEPTH BELOW SURFACE	SAMPLE NUMBER	BLOWS PER 6" ON SAMPLER	WELL DESIGN	IDENTIFICATION OF SOILS/REMARKS
				0'-5' Fill: Gravel c/f, Clay, Silt
				5'-9' Fine/coarse Brown Sand
10'			casing	9'-10' Fine/coarse Brown Sand, some Silt
				10'-15' Fine/coarse Brown Sand, some Clay, little Silt
				15'-22' Fine Gray Sand
20'				
			well screen	22'-28' Brown Silt with little Clay
30'				28'-36' White Silt with little Clay, trace fine Sand
				36'-40' Coarse/fine Gravel
40'				

DNR-131 (7/73) EMERGENCY NO. (If any) –

B 1 3684 SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER BC-73-0010
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)

ORIGINAL (Red)

OWNER Mass Transit Administration
COL 15 LAST NAME FIRST NAME COL. 34

STREET OR RFD Maryland State Department of Transportation
COL 36 COL. 55

POST OFFICE Baltimore, Maryland
COL 57 COL. 76

6-13

B 1 CONTINUED — DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6

DATE 6-18-75 LICENSE NUMBER MDW-9002 80

George Ahern
FIRST NAME DRILLER LAST NAME

SIGNATURE George Ahern

B 2 — WELL INFORMATION
1 2 3 (SEQ. NO.) 6

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) None 8 12

AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) None 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING, AGRICULTURE, IRRIGATION
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
- M MUNICIPAL WATER SUPPLY
- P PRIVATE WATER COMPANY
  } MUST HAVE STATE HEALTH DEPT. APPROVAL
- (T) TEST

22

APPROXIMATE DEPTH OF WELL 75' 24 28 FEET

APPROXIMATE DIAMETER OF WELL 8" (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED) JETTED DRIVEN

30-37 AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)

CABLE REVERSE-ROTARY DRIVE-POINT

OTHER (DESCRIBE) Earth Drill

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

39

- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL
  PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)

41 52

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER 54 ENGINEER REVIEW DISTRICT NO. 63 65

FORCE 67 68 WRITE INITIALS IN BOX 69 CONDITIONS 70 71 72 73 74 75 76 77 78 79

B 4 CONTINUED — HEALTH DEPARTMENT APPROVAL
1 2 3 (SEQ. NO.) 6

41 STATE HEALTH DEPT. COUNTY NO. 43

DATE MO. 06 DAY 27 YR. 75 APPROVED BY 46

B 3 — LOCATION OF WELL
1 2 3 (SEQ. NO.) 6

COUNTY ~~City of~~ Baltimore City
8 (DO NOT ABBREVIATE COUNTY NAME) 21

SUBDIVISION Charles Center
23 42

SECTION 4-11-69 LOT 1
44 46 48 50

NEAREST TOWN Baltimore
52 71

MILES FROM TOWN (ENTER 0 IF IN TOWN) 0
73 76 77 78

B 4 — DIRECTION FROM TOWN
(CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6

- N NORTH
- E EAST
- NE NORTHEAST
- SE SOUTHEAST
- S SOUTH
- W WEST
- NW NORTHWEST
- SW SOUTHWEST

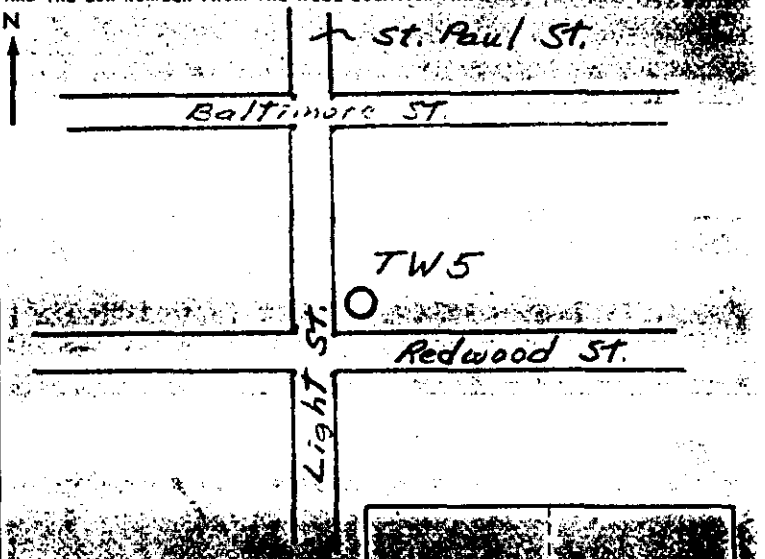
8 8 8 9 8 9

NEAR WHAT ROAD Light St.
11 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) SOUTH (S) EAST (E) WEST (W)
32 32 32 32

DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 14 FT M
34 37 38 39

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 520 N 530

NORTH COORDINATE 0/0 8/8

EASTING COORDINATE 0/0 8/8

ELEVATION AT WELL HEAD (FEET)

B 5 — SPECIAL CONDITIONS 8-63 (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6

SURVEY

DNR 214 9/71

C 1 8188 SEQUENCE NO. (WRA USE ONLY)

LAT. 2 3' (SEQ. NO.) 6

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

COUNTY NUMBER 13 (BALTIMORE CITY)

DATE RECEIVED (WRA USE ONLY)

DATE WELL COMPLETED: July 7 - 1975 (8-13)

DEPTH OF WELL: 75.0' (TO NEAREST FOOT) (22-26)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BC-73-0010 (28-37)

DRILLERS IDENTIFICATION NO.: MWD9002

OWNER: Maryland Transit Authority, City of Baltimore (LAST NAME / FIRST NAME)

STREET OR RFD:

POST OFFICE: Baltimore, Maryland

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Bricks, Fill	0	10.0'	
Sand & Gravel trace Silt	10.0'	16.0'	
Silty Clay, Fine Sand	15.0'	240'	
Silty Sand & Gravel	240	320'	✓
Silty Clay Tr. Fine - Med. Sand	320	360'	✓
Sand & Gravel	360	390'	✓
Silty Sand, Med. Gravel	390	550	✓
Silty Clay	550'	750'	

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) NO (N) (44)

TYPE OF GROUTING MATERIAL (CIRCLE BOX): CEMENT (C M) (45 46) BENTONITE CLAY (B C) (45 46)

NO. OF BAGS _____ NO. OF POUNDS _____

GALLONS OF WATER: 5 cubic Yards

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 23 FT. TO 3 FT. (48-52 / 54-58)

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T) CONCRETE (C O) PLASTIC (P L) OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
S T (60-61)	8" (63-64)	320' (66-70)

OTHER CASING (IF USED)

EACH CASING

DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T) BRASS OR BRONZE (B R) OPEN HOLE (H O) PLASTIC (P L) OTHER (O T)

C 2 (SEQ. NO.) 6

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN

	FROM	TO
1 S T (8-9)	75 (11-16)	30 (17-21)
2		
3		

SLOT SIZE 1 .040 2 3 (29-36)

DIAMETER OF SCREEN 8" (NEAREST INCH) (56-60)

GRAVEL PACK FROM 75 TO 23

WELL DRILLED WAS A FLOWING WELL (CIRCLE BOX) (F) (68)

FOR WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER) (E.R.O.S.)

STEREOSCOPE CASING (70) LOG INDICATOR (72) OTHER DATA AVAILABLE (74 75 76)

PUMPING TEST

C 3 (SEQ. NO.) 6

HOURS PUMPED (TO NEAREST HOUR): 190 (8-9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 200 (11-15)

METHOD USED TO MEASURE PUMPING RATE: Flow Meter

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 30' (17-20) (NEAREST FOOT)

WHEN PUMPING: 40' (22-25) (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX) (FOR PUMPING TEST)

A AIR (27) P PISTON (27) T TURBINE (27)

C CENTRIFUGAL (27) R ROTARY (27) O OTHER (DESCRIBE BELOW) (27)

J JET (27) S SUBMERSIBLE (27)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O): S (29)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON): 200 (31-35)

PUMP HORSE POWER: 10 (37-42)

PUMP COLUMN LENGTH (NEAREST FOOT): 71 (43-47)

CASING HEIGHT

(CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

+ ABOVE / - BELOW LAND SURFACE: 0 (NEAREST FOOT) (49-51)

CIRCLE APPROPRIATE BOXES

A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONSTRUCTED FOR PRODUCTION USE

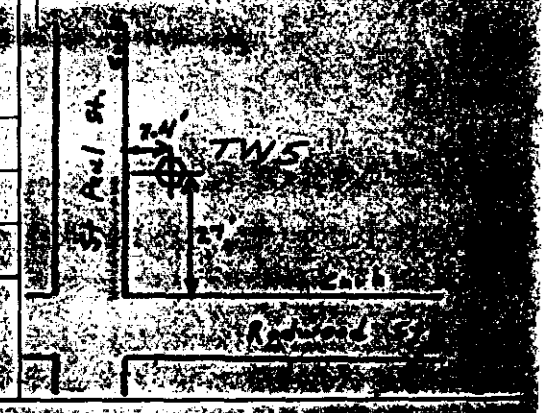
I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL" AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLER'S NAME (PLEASE PRINT): Eugene Kneher

SIGNATURE: Eugene Kneher

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



SURVEY

DNR-131 (7-77) EMERGENCY NO. (If any) –

B 1 4772 — SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER: BA73-7723
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)

ORIGINAL (Red)

OWNER: JAMES S. CHELLIS (COL 15 LAST NAME) FIRST NAME (COL. 34)
STREET OR RFD: 1534 TAYLOR AVE. (COL 36) (COL. 56)
POST OFFICE: BALTIMORE MD 21240 (COL 57) (COL. 76)

8-13

B 1 CONTINUED (1 2 3 SEQ. NO. 6)

DRILLER INFORMATION

DATE: Oct. 80
LICENSE NUMBER: 9 (77 – 80)
FIRST NAME: EARL — DRILLER — LAST NAME: JONES
SIGNATURE: Earl Jones

B 2 (1 2 3 SEQ. NO. 6)

WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE): 5 (8 – 12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY): 400 (14 – 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING, AGRICULTURE, IRRIGATION
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
- M MUNICIPAL WATER SUPPLY
- P PRIVATE WATER COMPANY
  (M, P: MUST HAVE STATE HEALTH DEPT. APPROVAL)
- T TEST

(22)

APPROXIMATE DEPTH OF WELL: 200 FEET (24 – 26)
APPROXIMATE DIAMETER OF WELL: 6 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

	BORED (OR AUGERED)	JETTED	DRIVEN
(30-37)	AIR-ROTARY	AIR-PERCUSSION	ROTARY (HYDRAULIC ROTARY)
	CABLE	REVERSE-ROTARY	DRIVE-POINT

OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL
  PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)

(38) (41 – 82)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER (84 – 83) — ENGINEER REVIEW DISTRICT NO. (85)
FORCE (67 68) — WRITE INITIALS IN BOX — CONDITIONS (70 71 72 73 74 75 76 77 78 79): A E N S G W Q C L U

B 4 CONTINUED (1 2 3 SEQ. NO. 6)

HEALTH DEPARTMENT APPROVAL

(41) (S) STATE HEALTH (CIRCLE BOX) — COUNTY NAME: BALTIMORE — COUNTY NO.
(51) DATE: MO. 10 DAY 06 YR. 80 (43 – 48) — APPROVED BY: Thomas H. Epp

B 3 (1 2 3 SEQ. NO. 6)

LOCATION OF WELL

COUNTY: BALTIMORE (8 – 21) (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION: Worthington Valley Estates (23 – 42)
SECTION (44 – 46)
LOT: 7 (48 – 50)
NEAREST TOWN: COCKEYSVILLE (52 – 71)
MILES FROM TOWN (ENTER 0 IF IN TOWN): 4 (73 – 76) (M I)

B 4 (1 2 3 SEQ. NO. 6)

DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

- (N) NORTH
- (E) EAST
- (NE) NORTHEAST
- (SE) SOUTHEAST
- (S) SOUTH
- (W) WEST
- (NW) NORTHWEST
- (SW) SOUTHWEST

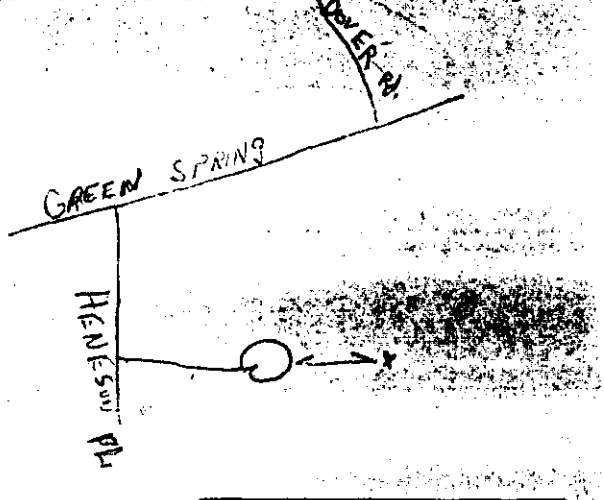
(8 – 9)

NEAR WHAT ROAD: KING CANUTE CT. (11 – 30)

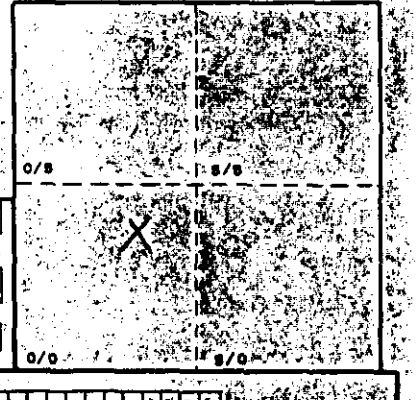
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): (N) (S) (E) (W) (32)

DISTANCE FROM ROAD – (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX): 600 (34 – 37) (M Ft.)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER: E 870, N 590



NORTH COORDINATE (50 51 52 53 54 55)
EAST COORDINATE (57 58 59 60 61 62 63)
ELEVATION AT WELL HEAD (FEET) (64 65 66 67 68)

B 5 (1 2 3 SEQ. NO. 6) — SPECIAL CONDITIONS 8-69 (WRA USE ONLY)

NEW BALTIMORE COUNTY
VERIFY FEET REQUIRED

SURVEY

C 1 3433 SEQUENCE NO. (WRA USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL IS COMPLETED

COUNTY NUMBER 03 ORIGINAL

Date Received (WRA use only)

DATE WELL COMPLETED 3 Dec 80

Depth of Well 298 (TO NEAREST FOOT)

PERMIT NO. (red) FROM "PERMIT TO DRILL WELL" B A - 7 3 - 7 7 2 3

OWNER CHELLIS (last name) JAMES S. (first name)

STREET OR RFD 1534 Taylor Avenue TOWN Baltimore, Md. 21240

SUBDIVISION WORTHINGTON VALLEY ESTATES SECTION KING CANUTE COURT LOT 7

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
Brown dirt	0	6	
soft Red rock mica	6	60	
soft brown rock	60	72	
Hard brown rock	72	77	
gray mica rock	77	300	
Water coming in steel pipe			
soft red soft brown rock	92		

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) YES Y NO N

TYPE OF GROUTING MATERIAL

CEMENT C M BENTONITE CLAY B C

NO. OF BAGS 16 NO. OF POUNDS 1600

GALLONS OF WATER 96

DEPTH OF GROUT SEAL (to nearest foot)

from TOP 0 ft. to BOTTOM 74 ft.

(enter 0 if from surface)

CASING RECORD
casing types (insert appropriate code below)

S T STEEL C O CONCRETE P L PLASTIC O T OTHER

MAIN CASING TYPE	Nominal diameter top(main)casing (nearest inch)	Total depth of main casing (nearest foot)
S T	6	75

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole (insert appropriate code below)

S T STEEL B R BRASS, BRONZE H O OPEN HOLE P L PLASTIC O T OTHER

C 2 (seq. no.)

EACH SCREEN	DEPTH (nearest ft.) from	to
1	H O 74	300
2		
3		

SLOT SIZE

DIAMETER OF SCREEN (NEAREST INCH)

GRAVEL PACK from to

IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX F

C 3 (seq no)

PUMPING TEST
HOURS PUMPED (nearest hour) 6

PUMPING RATE (gal. per min. to nearest gal.) 1

METHOD USED TO MEASURE PUMPING RATE TIME

WATER LEVEL (distance from land surface)

BEFORE PUMPING 49

WHEN PUMPING 100

TYPE OF PUMP USED (for test)

A air P piston T turbine

C centrifugal R rotary O other (describe below)

J jet S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES Y NO N

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O)

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height)

above / below LAND SURFACE (nearest foot)

CIRCLE APPROPRIATE BOX
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

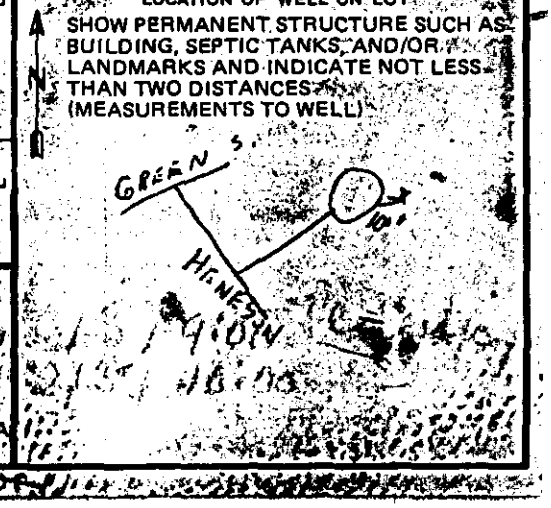
I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

DRILLER'S IDENT. NO. 9

DRILLER'S SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign if driller or journeyman responsible for work if different from permittee)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W/Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

SURVEY

EMERGENCY/TEMP NO. IF ANY

B 1 - 3290 SEQUENCE NO. (OEP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

OEP PERMIT NUMBER BA-81-6209
fill in this form completely

ORIGINAL (Red)

Date Received 01 08 87

OWNER INFORMATION

B GREEN & CO INC
Last Name Owner First Name

3601 WASHINGTON BLVD
Street or RFD

BALTIMORE MD 21227
Town State Zip

DRILLER INFORMATION

Anthony R. D'Amiano 346
Driller's Name 77 License No.

HANDEX CORPORATION
Firm Name

360 Morgan Rd. P.O. Box 522 Odenton, Md. 21113
Address

Anthony R. D'Amiano 1-8-87
Signature Date

WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) NONE

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- 22 I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- T TEST, ~~OBSERVATION~~, MONITORING (MAY REQUIRE ~~APPROPRIATION~~ PERMIT)

APPROXIMATE DEPTH OF WELL 20 FEET

APPROXIMATE DIAMETER OF WELL 4 11 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) JETTED Jetted & DRIVEN
30 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- 39 S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER - GAP

FORCE SE WRITE INITIALS IN BOX PERMIT No. BA-81-6209

LOCATION OF WELL

B 3

8 COUNTY BALTIMORE 21

23 SUBDIVISION 42

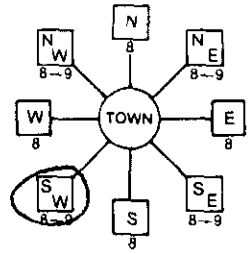
SECTION 44 46 LOT 48 50

52 NEAREST TOWN BALTIMORE CITY 71

MILES FROM TOWN (enter 0 if in town) 0 6 M I
73 76 77 78

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



WASHINGTON BLVD
11 NEAR WHAT ROAD 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

34 700 37 DISTANCE FROM ROAD

ENTER FT or MI F 38 39

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME Balto COUNTY NO. 03

OEP SIGNATURE STATE HEALTH INSERT S

DATE ISSUED 01/08/87 CO-SIGNATURE EXP. DATE

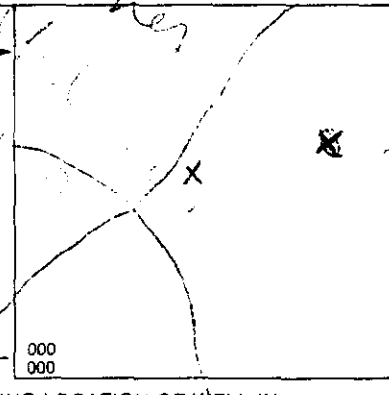
NORTH GRID 51600 50 55 EAST GRID 0894 00 63

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

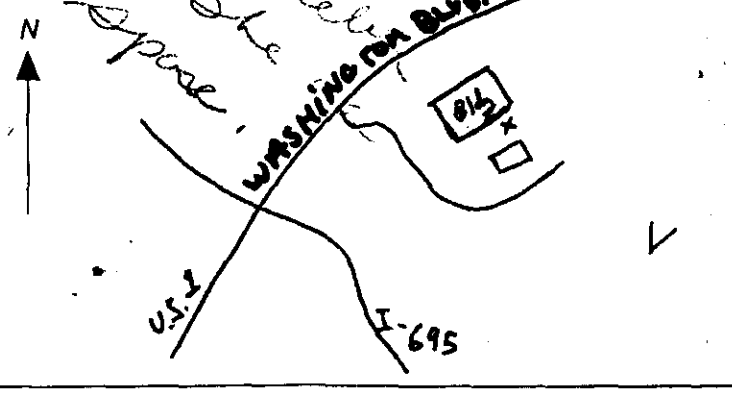
SOURCES OF DRILLING WATER
1.
2. None
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

890 E 890
510 N 510



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

13

SURVEY

C 1 3189 SEQUENCE NO. (OEP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER (Red)

DATE Received

DATE WELL COMPLETED 07/28/87

Depth of Well 47 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BC-81-0627

OWNER CONSOLIDATED EIGHTY-ONE

STREET OR RFD 7661 PENROSE AVE. TOWN [illegible]

SUBDIVISION _____ SECTION _____ LOT _____

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
BITUMINOUS CONCRETE	0	0.2'	
REDDISH - BROWN MOIST SILT, SOME MF SAND, TRACE OF ROCK FRAG. (FILL)	0.2'	4.0'	
TAN & WHITE, MOIST CLAYEY SILT, LITTLE SAND (CROSS FILL)	4.0'	9.0'	
MULTICOLORED, MOIST F-SAND SOME SILT, SEAM. OF CLAYEY SILT	9.0'	~~13.5~~ 13.5	
LIGHT GRAY MOIST F- AND, LITTLE SILT SEAMS OF CLAYEY SILT	13.5'	18.5'	
REDDISH - BROWN MOIST, MF SAND LITTLE SILT,	18.5'	24.5'	
TAN, MOIST, MF SAND LITTLE SILT, LITTLE MF - GRAVEL	24.5'	29.0'	
WHITE & TAN MOIST CLAYEY SILT, LITTLE F-SAND	29.0'	38.5'	
TAN MOIST MF SAND LITTLE SILT TRACE FINE GRAVEL	38.5'	45.5'	
WHITE MOIST, F-SAND, & CLAYEY SILT, SEAM OF F-SAND,	45.5'	48.5'	
REDDISH - BROWN MOIST MF-SAND, LITTLE SILT, & LITTLE MF - GRAVEL, SEAMS OF SILT.	48.5'	49.0'	

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. MWD 232

Louis H. Bellard

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) — yes **Y** / no N

TYPE OF GROUTING MATERIAL

CEMENT **CM** BENTONITE CLAY **BC**

NO. OF BAGS 2 NO. OF POUNDS 188

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 ft. (TOP) to 5 ft. (BOTTOM)

(enter 0 if from surface)

CASING RECORD
casing types — insert appropriate code below

ST STEEL **CO** CONCRETE **PL** PLASTIC **OT** OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	39

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to
1			
2			

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL **BR** BRASS BRONZE **HO** OPEN HOLE **PL** PLASTIC **OT** OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	39	49
2			
3			

SLOT SIZE 1 020 2 ____ 3 ____

DIAMETER OF SCREEN 4 (NEAREST INCH)

GRAVEL PACK from 6' to 49'

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (TELESCOPE CASING) (E.R.O.S.) (LOG INDICATOR) WQ (OTHER DATA)

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 1

PUMPING RATE (gal. per min. to nearest gal.) 1

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING 1

WHEN PUMPING 1

TYPE OF PUMP USED (for test)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) — YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS, EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:

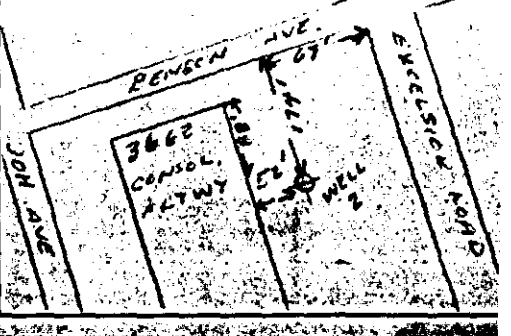
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height) + above / - below LAND SURFACE 1 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



SURVEY

FIGURES

EPA REGION III
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # 445406
PAGE # _____

IMAGERY COVER SHEET
UNSCANNABLE ITEM

Contact the CERCLA Records Center to view this document.

SITE NAME Black Manufacturing Co., Inc.
OPERABLE UNIT 00
SECTION/BOX/FOLDER IC - 1 - 1.001

REPORT OR DOCUMENT TITLE Preliminary Assessment
DATE OF DOCUMENT Aug. 4, 1993
DESCRIPTION OF IMAGERY Site Map
NUMBER AND TYPE OF IMAGERY ITEM(S) 1 oversized site map